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Caring for Depreciation

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The business man who desires to find in his books a verification of his financial situation is intensely interested in the subject of depreciation. The natural decay which diminishes the value of most material assets is a universal phenomenon, but extremely difficult to gauge accurately. In accounting for depreciation there is always possibility for misrepresentation, accidental or otherwise. We know how difficult it is to estimate the actual present value of a particular asset such as a house or a machine, to say nothing about anticipating the duration of its future usefulness. But experience teaches us that most things do depreciate, and that aside from depreciation resulting from wear and tear, many things also decline in value as the result of obsolescence—going out of style. It is the duty of the accountant properly to care for these changes on the business records.

Differences in depreciation, not only in unlike things, but in implements, machines and other assets of identical construction are of frequent occurrence. A machine constantly exposed to the damaging influence of the elements, even if but little used, will rapidly deteriorate. The same machine adequately sheltered may be operated constantly with but slight depreciation. One machine may be so constructed that ordinary use wears it slowly, and there may be a probability of obsolescence before it is worn out. Another will deteriorate rapidly leaving no decline for obsolescence. After a certain amount of experience it is usually possible to forecast with tolerable accuracy the time when final renewal or replacement will be necessary. Since this

is true, besides estimating and allowing for depreciation already taken place, we can make provision for future depreciation, if it is desirable to do so.

Depreciation resulting from wear and tear may be classed in three varieties, leading respectively to (*a*) current repairs, (*b*) deferred renewals, and (*c*) replacement. This is not always the manner in which the classification is made, but it is best for purposes of this discussion to use these three classes. Under current repairs are included the numerous things that must be done to keep the plant in good sound working condition from day to day. The broken belt must be repaired. The lost screw must be replaced. Expenses arising from repairs of this kind are, with the possible exception of the first few years of the plant's life, spread quite evenly over the accounting periods, and so should be met out of current revenue. If they are not so met capital will be impaired as the result of not having provided adequate means for the upbuilding of the declining assets.

But it frequently happens that some part must be renewed which, if charged to current revenue, would be an uncommon burden. It then becomes proper to arrange that cost of renewal which will last over several years may be charged to revenue during those years, instead of making the entire charge to current revenue. If the plant and machinery which compose the assets are extensive this rule may be ignored, for then renewals as well as current repairs may be quite evenly distributed from year to year. When such is the case it is not improper to charge the renewals of each year to revenue. Usually, however, it is better to differentiate between these two classes of expense and to treat them as already suggested.

Even with current repairs and renewals which extend over a period of years thus cared for, the time arrives when the entire replacement of some costly asset becomes necessary. By long use it has yielded up all of its value except what it may still be worth as scrap. Machines, as Marx says, are congealed labor. By use this congealed labor has been transferred to the output which the machine assisted in producing. Or, as P. D. Leake expresses it, the capital outlay on the machine has expired and to avoid diminishing permanently the value of the assets it

must be replaced in the form of a new machine. If the charging of renewals to current revenue is wrong, then to charge the replacement of a costly asset to current revenue would be even more in error. A machine that has been transferring its value into commodities for twenty years and at last collapses ought not to be replaced out of current revenue unless the number of replacements are so numerous that their cost is evenly distributed from year to year, which is not frequently the case. Not only would it cause an unwonted irregularity in net profits, but to a recent buyer of stock it would mean a charge to replace that from which he has derived no benefit.

Railroads furnish the best instance of corporations owning assets of so great a variety as to allow the charge of current repairs, renewals and replacement to current revenue. This is known as the *insurance method,* and has received the sanction of the Interstate Commerce Commission, as follows:

> "This means that the fund accumulated by depreciation charges should not be reserved as an accumulation until it can be spent for the purpose of replacing the identical property upon which the fund accumulated when such property is abandoned; but, on the contrary, that this fund should be expended, in whole or in part, during the year in which it is created, in the replacement of other equipment or in the purchase of new equipment. It is not intended to say that the entire accumulation of a year must be expended during the year. The wisdom of purchasing new equipment or of replacing equipment destroyed is a matter of business policy, and the decision as to the time or extent of such purchase or replacement lies with the board of directors; it does mean, however, that the replacement fund should be used for the purpose for which it is created." [1]

The other general method of making provision for replacement and renewals is the *sinking fund* method. In this case a certain percentage of the value of an asset is written off to depreciation each year and this sum is allowed to accumulate in the form of an outside investment, or as an investment within the business, so that when the time for replacement arrives the fund will be sufficient to purchase the new asset.

Before considering the different ways of providing for such a depreciation fund we must take note of a method which, although it may not be satisfactory from a theoretical viewpoint, has upon its side at least the advantage of simplicity and the

[1] *Accounting Series,* Circular No. 13, p. 2.

usage of many large establishments. It is based on the theory that it is impossible to foretell with sufficient accuracy the lifetime of a machine to justify an attempt at creating a fund for its replacement. Moreover, assets may suffer sudden decline in value as the result of governmental regulations which cannot be anticipated. In improving streets a municipal board may order the removal of good telephone poles to alleys, or require underground wiring. Possible loss of this kind cannot be anticipated. State legislatures may require such building as will place older structures in an antiquated class. If laws compel the rearrangement of doors, etc., for sake of safety, it would be improper to charge the cost of such alterations to capital, for a building built on the new plan may cost no more than if the antiquated plan had been followed. The alteration is made to avoid falling below the level of efficiency, not to increase productive power.

So, without any attempt at an accurate determination of depreciation, present or future, a round sum is written off which an ordinary judgment of affairs deems sufficient to cover actual loss. This method is convenient and desirable in so far as it approximates the actual conditions. Perhaps the best way to decide whether or not sufficient is being written off is to discover by means of a careful valuation of assets what percentage of the original cost of assets has disappeared through deterioration and obsolescence.

When a round sum is thus written off annually the temptation exists to alter its amount to make a good showing in net profits. Oftentimes it is frankly admitted that it is done, for what is more desirable than a good showing in profits? How else can such a showing be more easily made? A better way would be to supplement low profits out of a surplus accumulated during prosperous years and thus continue the charge to depreciation undiminished when otherwise it might cut dangerously into the profits of the period. This cannot be done, however, when such a surplus is wanting. It is questionable whether a very low percentage of profits will justify neglecting to write off the full amount to depreciation. In Willcox *v.* Consolidated Gas Company (U. S. 29 Sup. Ct., 53 L. Ed.) the Supreme Court of the United States decided that where a company having a monopoly

is permitted to charge such a rate as to obtain a net profit of six per cent. there is no reason why full depreciation should not be charged. This seems to imply that a very low rate would justify writing off less to depreciation. Strict conservatism, however, dictates full charge for that purpose even at the risk of a deficit.

We may now consider methods of providing for future depreciation and obsolescence of specific assets. These apply not to current repairs but to extensive renewals and replacements. The question often arises: When will the asset under consideration require replacement, and what will the cost of replacement be, after deducting a possible residual value? If this question can be answered with a fair degree of accuracy, it remains to decide upon a plan to meet the accruing charge. Evidently the answer must be an estimate.

"To cover this item," says A. C. Humphreys, "the first step is to estimate the probable life of each part of the plant, taking into consideration the class and character of plant, its design and construction, the way in which it is operated, and especially whether it is over-worked or not, whether it is kept in good repair, and whether the cost thereof is charged year by year against the profits."

Only long experience in the industry under consideration, consultation with engineers and experts capable of judging on certain points, and utmost care in every detail, will enable the accountant to avoid errors that will vitiate his calculations and perhaps render them worse than useless.

A convenient method of reckoning the annual charge, after we have determined the lifetime, cost of replacement, and residual value of an asset, is to deduct the residual value from the cost of replacement and divide the difference by the number of years. Letting D represent the amount to be charged periodically, a the cost of renewal, a' the residual value, and n the number of years (or accounting periods), then, algebraically expressed,

$$D = \frac{a - a'}{n}$$

This method requires equal annual charges and does not take into consideration interest on either the fund so set aside or

on the capital invested in the asset. If the asset is short lived neglecting to consider interest is not a matter of great importance. But if its lifetime extends over a long period of years it becomes a factor that must not be overlooked. The fund set apart may be, and should be, invested in some productive undertaking; but the resulting income will not be required as part of the replacement fund, which should be sufficient without the addition of interest accretions.

But if the income from the funds thus set aside be used with the funds themselves to make the replacement, then clearly each charge to profits should be smaller than when only the principals annually set aside are so employed. So far as results are concerned it may not matter greatly whether the interest earned by the replacement fund is added to it or not, but we shall find that when the interest is added to the fund a more complex computation must be made to discover what will be the proper periodical charge.

Before proceeding farther let us consider a question that should be answered before we can determine upon the best way to make the annual charge. Is the depreciation a constant percentage of the original value of the plant or other asset under consideration, or does it vary, growing larger or smaller as the asset value expires? It is conceivable that depreciation may be very slight during the first few years of operation, and when the best work and highest profits are being secured. On the other hand depreciation may be rapid during the last years when the output is being restricted. If such is the case is it not proper to charge off large amounts to depreciation during the early years in order that a smaller charge may be made when the decline becomes rapid? Such action corresponds to the action of a man who takes out a life insurance policy wishing that his years of vigor may compensate for the period of decay.

This may be effected by charging off a constant percentage on the decreasing balance or decreasing asset value. For purposes of computation it is necessary to assume a residual value which we will represent by V′. The other known factors are the original value, or V; and the number of years or periods, which we will represent by n. We desire to find the fixed percentage

which we must charge on the decreasing value of the asset in order that at the end of n years or periods the sum of these charges will equal the initial value minus the residual value. Let x represent the percentage which we desire to find. At the end of the first year the value of the asset will be $V\ (1-x)$, at the end of the second year $V\ (1-x)^2$, and at the end of the nth year $V\ (1-x)^n$, which is the residual value. Therefore,

$$V\ (1-x)^n = V'$$

or, solving for x,

$$x = 1 - \sqrt[n]{\frac{V'}{V}}$$

Neither of these methods takes interest into consideration. It may be desirable to invest the amount set aside at compound interest and allow it to accumulate with the intention of using both the original amounts charged and their earnings for the purpose of making the replacement. When this is done it is customary to write off periodically a fixed sum, which is allowed to accumulate at compound interest. When replacement becomes necessary the annual fixed sums written off and invested should, with their accumulations of interest, amount to the cost of replacement. For a working basis we must know four things with reasonable exactness:

1. How many years the asset in question will last.
2. What rate of interest we may depend upon getting for our money during this period.
3. What the residual value of the asset will be.
4. What will be the cost of renewal.

These things must be learned exactly or carefully estimated. Expert opinions will be necessary. The engineer must be the authority on longevity of the asset. The banker must furnish the best available information regarding the rate of interest. For purposes of illustration let us assume the four factors in a particular instance to be:

1. Duration of life of asset..... 50 years
2. Rate of interest..... 5 per cent.
3. Residual value..... 0
4. Original cost..... $200,000

Whenever a series of numbers increases or decreases by a constant factor it forms a geometrical progression. In this case we have a geometrical progression whose terms consist of the respective amounts of principal and interest which exist at the end of fifty years. It is evident that the last of the equal payments out of revenue will accumulate no interest; the one preceding this will accumulate one interest payment which is added to the principal, and so on. Since five per cent. is the rate of interest we obtain a geometrical series which decreases by a constant factor, thus:

Third year from last the depreciation charge accumulates to 1.157625 times the principal.

Second year from last the depreciation charge accumulates to 1.1025 times the principal.

Next to last year depreciation charge accumulates to 1.05 times the principal.

Last year depreciation charge accumulates no interest, so amounts to 1.00 times the principal.

The reader will notice that the constant factor is 1.05 in the series consisting of the amounts of annual depreciation charges and their accumulated interest. If now we assume A to be the fixed annual payment necessary to produce the required sum, then A (1.05) is the accumulation of the next to the last year, A $(1.05)^2$ that of the preceding, A $(1.05)^3$ that of the next preceding, and in this instance A $(1.05)^{49}$ that of the first principal invested. To secure a general formula let r represent the constant factor, and n the number of years, then,

$$Ar^{n-1} + Ar^{n-2} \ldots\ldots\ldots\ldots + Ar^4 + Ar^3 + Ar^2 + Ar + A$$

is the general form of the decreasing geometrical progression. In our problem we have all the factors known except A, the last term, which is the annual fixed charge. The sum of these terms is the cost of replacement. This is a known quantity usually approximating the original cost. By a well-known mathematical principle,[1]

$$S = \frac{(Ar^{n-1} \times r)\ A}{r - 1} \qquad \text{or} \qquad S = \frac{A\ (r^n - 1)}{r - 1}$$

[1] To find the sum of the terms of a geometric series, multiply the greatest term by the ratio; from the product subtract the last term; divide the remainder by the ratio less 1.

therefore,

$$A = S\frac{r - 1}{r^n - 1}$$

Substituting known values,

$$A = 200{,}000\frac{1.05 - 1}{1.05^{50} - 1}$$

Finally, the annuity method proceeds on the assumption that it is essential to charge not only depreciation in the ordinary sense to revenue, but that there should be included in this charge as a legitimate expense involved in production an amount equal to the interest which the capital would produce if otherwise invested. For example, if a machine costing $100 lasts one year and money brings six per cent., we must write off not $100, but $106. So at the end of the year of an asset's existence the charge to revenue should be depreciation + interest on invested capital. In this case we have the following known quantities:

Beginning value, or A
Residual value, or A′
Rate of interest, or r
Number of years, or n

to find the annual charge which must be made, which we will represent by D. Suppose the lifetime of our plant is four years, then,

$$\{[(Ar - D)\ r - D]\ r - D\}\ r - D = A'$$

or,

$$Ar^4 - Dr^3 - Dr^2 - Dr - D = A'$$

solving for D,

$$D = (Ar^4 - A')\frac{(r - 1)}{(r^4 - 1)}$$

In general,

$$D = (Ar^n - A')\frac{(r - 1)}{(r^n - 1)}$$

Which method ought we to employ in any particular instance? The answer to this question involves several factors. If the asset is short lived, the consideration of interest will not be a matter of great importance. If it is desirable to write off the depreciation rapidly during the earlier and presumably more

productive period of the asset's lifetime then the fixed percentage on the reducing balance method should be employed. It is difficult to estimate the amount of depreciation that has actually taken place, but this need not be the controlling factor in the determination of a method. If the asset is long lived interest ought to be taken into consideration. When the plan of writing off a fixed amount annually is followed this amount so set aside will be used in some form of productive enterprise, either within the business or in outside investment. The income earned by this fund may be (*a*) added to the general income of the firm, or (*b*) added to the principal and thus allowed to accumulate by compound interest. The reader will readily see that in the former case the annual charge must be greater than in the latter, since the earnings of the yearly charges are not added to the fund. In the latter case the effect is to make the charge to depreciation an annually increasing one because accruals of interest are added to the principal as they come due. Generally it is best to write off large amounts to depreciation during the early years. There may be valid reasons for the opposite treatment, however, not the least being that heavy charges during the latter years may serve as a reminder that replacement will soon be necessary. The mere fact that the asset is not worth its former value is no valid reason for lowering the charges, for its value has merely been changed to some other productive form.

Cotton Mill Accounting

By G. G. Scott

Improved Arrangement of the Balance Sheet and Forms for Analytical Statements of Operations, Representing the Closing Process of the Books

Practitioners, who are familiar with general cotton mill accounting, are aware of the numerous kinds of systems used, also the different processes and various methods practised in closing the books for the purpose of determining profit or loss.

Among the larger and most important classes of our industries there appears to exist no greater necessity for a uniformity or standardization of accounting methods, than in the cotton manufacturing end of the textile business.

The following illustrations of the arrangement of a balance sheet and the exhibited forms of analytical statements of operations may represent improvements and standardization, especially adapted for cotton mills, that not only conform to suggestions of leading authorities in principle, but intelligently present such detail information as may be desired by those interested in the business.

There is special information in cotton manufacturing operations that the management will require, and in devising a system of accounting for this business, due regard must be given in the plan or arrangement to present such information as shall be desired in an accurate and scientific manner, requiring the least clerical work.

A feature in the plan or process illustrated is the method of presenting the cost of the product through the general books, a feature infrequently seen in bookkeeping systems of cotton mills.

The illustrated forms comprehend the class of mills situated in country districts, that may operate a store, farm, gin or other outside operations, such as are frequently seen in the cotton manufacturing sections of the South, as well as the class of mills which are not engaged in outside operations.

CHARLOTTE COTTON MILLS

Charlotte, North Carolina

BALANCE SHEET

DECEMBER 30, 1911 — EXHIBIT A

ASSETS			LIABILITIES AND NET WORTH		
LIQUID ASSETS			**WORKING LIABILITIES**		
Imprest fund	$xxx		Accounts payable	$xxx	
Bank balances	$xxx		Notes payable	$xxx	
Accounts receivable	$xxx		Interest accrued and not due	$xxx	
Due by commission houses	$xxx		Labor accrued and not due	$xxx	
Notes receivable	$xxx		Taxes accrued and not due	$xxx	
Cotton inventory	$xxx				$xxxx
Product inventory	$xxx				
Waste products inventory	$xxx		**FIXED LIABILITIES**		
		$xxxx	First mortgage bonds 5% 1920		$xxxx
CONSIGNMENT ACCOUNT					
Product consigned	$xxx		TOTAL LIABILITIES		$xxxx
Less advances	$xxx				
		$xxxx	**NET WORTH**		
DEFERRED CHARGES TO COST OF PRODUCT			Common stock outstanding	$xxx	
Stock in process unabsorbed	$xxx		Preferred stock outstanding	$xxx	
Supplies unabsorbed	$xxx		Total outstanding stock	$xxx	
Fuel unabsorbed	$xxx		Undivided profits January 1, 1911	$xxx	
Oils and greases unabsorbed	$xxx		Total net worth January 1, 1911	$xxx	
Insurance premiums prepaid	$xxx		Less dividends on preferred stock (8%) paid 1911	$xxx	
		$xxxx	Net total worth	$xxx	
DEFERRED CHARGES TO INCOME			Profits earned 1911 (Ex. "A")	$xxx	
Interest prepaid	$xxx				$xxxx
Rents accrued and not due	$xxx				
		$xxxx			
MILL PROPERTY INVESTMENTS					
Real estate	$xxx				
Mill buildings	$xxx				
Workmen's cottages	$xxx				
Machinery and equipment	$xxx				
Power, heat and light equipment	$xxx				
Office furniture and fixtures	$xxx				
	$xxx				
Less depreciations	$xxx				
		$xxxx			
OTHER INVESTMENTS					
Store (merchandise at cost)	$xxx				
Farm and equipment	$xxx				
Gin and equipment	$xxx				
		$xxxx			
TOTAL ASSETS		$xxxxx	TOTAL LIABILITIES AND NET WORTH		$xxxxx

Arrangement of Balance Sheet

Not only the banker or credit man, but the stockholder also is particularly interested in that class of a mill's assets designated as "liquid assets" in the balance sheet, which embrace the cash, and such other assets as may be easily converted into cash, including the finished products, also the class of liabilities designated as "working liabilities," which embrace the current indebtedness of the mill. The financial health of a mill may be indicated by the comparative aggregates of these two groups, and the arrangement is considered important to those interested in the financial position of the mill.

It is seen that of the inventories, only the finished products and the cotton are shown as liquid assets, the remainder of the inventories, cotton in process, known as "stock in process," supplies, fuel, insurance prepaid, etc., are classified as "deferred charges to cost of product." This class of assets has important going values at cost, and converting values of uncertain amounts, hence must be distinguished in a balance sheet from that class of assets which has converting values. These assets are frequently classified under "inventories" or "deferred charges to profit and loss" by accountants, but in the opinion of the writer, this class of assets is directly a deferred charge to the cost of the product, and is not a deferred charge to profit and loss; and while they may be inventories, yet they are of a different character from inventories of converting values and should be so distinguished.

There appears to be insufficient attention given to the preparation of balance sheets in the respect of arrangement of the assets and liabilities, even by professional accountants.

Consignment Account

If in a balance sheet of the assets and liabilities of a mill, there appears a consignment account, and advances from the selling agency, it should be exhibited as illustrated—viz., the amount of the product consigned (at cost) less the amount advanced deducted.

Advances from commission houses or selling agencies is a corelative account to the product consigned.

Advances made to mills by their selling agencies, which is a common practice in the cotton mill business, are not liabilities in the sense of such items as are usually shown in a balance sheet as liabilities. It is usual for cotton mills to ship their products to a commission merchant, who is known as their selling agent. If the merchant is unable to sell the product as fast as the mill delivers it, the unsold becomes a "consigned product," and frequently the merchant will make advance to the mill, which is paid by deducting the amounts from the proceeds of the sale of the consigned product.

Advances of this character mean that the commission merchant has advanced to the mill a reasonable amount of the expected proceeds of the sale of the product on consignment, not expecting the mill to pay the advances in any other manner, and taking the prospects of the sale as sole security. It is, therefore, a product liability, and not a liability of the mill in the sense that general liabilities are, and should be treated or shown as illustrated in the balance sheet arrangement.

It occurs frequently that the commission house makes loans to mills, taking the product as security. In such a transaction, the distinction is apparent and would be shown differently on the balance sheet.

Under the heading in the balance sheet "deferred charges to income" are shown interest paid in advance, and rents accrued and not due, such as rents collected from operatives. Some accountants classify these items as "deferred charges to profit and loss."

Capital expenses and outside operations, are comprehended by income credits or income deductions, rather than a loss or profit, hence the term "deferred charges to income" is of more definite meaning and is more appropriate.

Property investments may be classified in two divisions in a cotton mill balance sheet. One division comprehending all mill properties, that is all property identified as necessary in producing the product, and another division representing outside properties, or such investments as may be identified as being unnecessary in

producing the product. In case of securities of a convertible or marketable nature, such should be shown separately from properties.

Liabilities may be classified in two divisions, current and fixed. These two divisions as a rule comprehend all items representing liabilities of a cotton mill.

The net worth of a mill embraces its outstanding stock, and its undivided profits, or if no profits exist and there is a deficit, the capital stock would be reduced to the extent of the amount of the deficit.

CHARLOTTE COTTON MILLS

Charlotte, North Carolina

COTTON ACCOUNT

YEAR 1911

EXHIBIT B

	Pounds	Amount	Average The Pound
Inventory January 1, 1911	xxxxxx	$xxxxxx	$xxx
Purchased during the year	xxxxxx	$xxxxxx	$xxx
Total	xxxxxx	$xxxxxx	$xxx
Less inventory December 30, 1911	xxxxxx	$xxxxxx	$xxx
Cotton put in process during year	xxxxxx	$xxxxxx	$xxx

STOCK IN PROCESS ACCOUNT

YEAR 1911

EXHIBIT C

	Pounds	Amount	Average The Pound
Inventory January 1, 1911	xxxxxx	$xxxxxx	$xxx
Cotton put in process	xxxxxx	$xxxxxx	$xxx
Total	xxxxxx	$xxxxxx	$xxx
Less inventory December 30, 1911	xxxxxx	$xxxxxx	$xxx
Stock in process consumed in product during the year	xxxxxx	$xxxxxx	$xxx

CHARLOTTE COTTON MILLS

Charlotte, North Carolina

COST OF PRODUCT

YEAR 1911

EXHIBIT D

MANUFACTURING DIVISION		
Stock in process consumed in product	$xxxxxx	
Superintendence	$xxxxxx	
Productive labor	$xxxxxx	
Non-productive labor	$xxxxxx	
Cost of power, heat and light	$xxxxxx	
Mill supplies consumed	$xxxxxx	
Maintenance of mill buildings	$xxxxxx	
Maintenance of workmen's cottages	$xxxxxx	
Maintenance of power, heat and light equipment	$xxxxxx	
Depreciation	$xxxxxx	
Beautifying and sanitation	$xxxxxx	
Unclassified expenses	$xxxxxx	
Insurance	$xxxxxx	
		$xxxxxx
ADMINISTRATION EXPENSES		
Executive salaries	$xxxxxx	
Office salaries	$xxxxxx	
Telegraph and telephone expenses	$xxxxxx	
Stationery and postage	$xxxxxx	
Unclassified office expenses	$xxxxxx	
		$xxxxxx
Total cost of product year 1911		$xxxxxx

NOTE:

Raw cotton poundage consumed	xxxxxx	
Less production poundage	xxxxxx	
Waste visible and invisible	xxxxxx	or xxx per cent
Average cost of cotton the pound	xxxxxx	
Represented value of waste the pound	xxxx	
Average cost of cotton in the average pound of product	xxxxxx	
Manufacturing expenses the pound	xxxxxx	
Administration expenses the pound	xxxxxx	
Total cost of product the pound	xxxxxx	

COST OF SALES

YEAR 1911

EXHIBIT E

Inventory of product January 1, 1911	$xxxxxx	
Add cost of manufacturing product during 1911	$xxxxxx	
Total	$xxxxxx	
Less inventory of product December 30, 1911	$xxxxxx	
		$xxxxxx

NOTE:

Average cost of sales the pound xxxx

CHARLOTTE COTTON MILLS
Charlotte, North Carolina

SALES ACCOUNT
YEAR 1911 — EXHIBIT F

Gross sales	$xxxxxx	
Less rebates and allowances	$xxxxxx	$xxxxxx
DEDUCTIONS		
Prepaid freights	$xxxxxx	
Commissions and discounts	$xxxxxx	
Casing and packing	$xxxxxx	
Shipping room expenses	$xxxxxx	
Traveling expenses of treasurer	$xxxxxx	$xxxxxx
Net income from sales year 1911		$xxxxxx
Less the cost of sales		$xxxxxx
Net profits in sales credited to income account		$xxxxxx
NOTE:		
Average sale price of product the pound	$xxx	
Selling deductions the pound	$xxx	
Net income from sales the pound	$xxx	
Less cost of sales the pound	$xxx	
Net profits in sales the pound	$xxx	

INCOME ACCOUNT
YEAR 1911 — EXHIBIT G

CREDITS		
Income from sales	$xxxxxx	
Income from waste product sales	$xxxxxx	
Income from rents of workmen's cottages	$xxxxxx	
Income from store	$xxxxxx	
Income from farm	$xxxxxx	
Income from cotton gin	$xxxxxx	$xxxxxx
DEDUCTIONS		
Interest	$xxxxxx	
Taxes	$xxxxxx	
Donations (charity, etc.)	$xxxxxx	$xxxxxx
Net corporate income credited to undivided profits		$xxxxxx

UNDIVIDED PROFITS
EXHIBIT H

CREDITS		
Balance undivided profits beginning of year	$xxxxxx	
Add net income for the year	$xxxxxx	$xxxxxx
APPROPRIATIONS		
Dividend No. xx on preferred stock 8% paid 1911	$xxxxxx	
Dividend No. xx on common stock 7% paid 1911	$xxxxxx	$xxxxxx
Balance undivided profits December 30, 1911		$xxxxxx

Analytical Statements of Operations

The foregoing illustrated forms of statements of operations of a cotton mill manufacturing yarns clearly indicate the process of closing the books in an understandable manner, as well as presenting in detail a photograph of the business.

The process with the information, as represented by these seven exhibits, is more quickly explained and easily understood by those interested in cotton manufacturing, though they may have limited knowledge of accounting methods, than any other process the writer knows.

It is observed that these forms illustrated present the process of closing the books, by being closed one into the other, until the undivided profits account is reached, and although its balance is not physically closed into the balance sheet, this is theoretically done, its balance being required to effect a balance in the balance sheet of assets, liabilities, and net worth.

Exhibit D, cost of product, includes two divisions of the expenses, manufacturing and administration. The administration expenses of a cotton mill are regarded as cost of product expenses. This applies to mills which sell their product through commission houses, by consignment methods, and not to the mills which sell their product direct, and maintain their own selling organizations. In the case of the latter, of which it appears there is a limited number, administration expense in its entirety could not be classified as a manufacturing cost, but rather be proportioned to the cost of product and the selling division upon an equitable basis.

Exhibit E, cost of sales, is a ledger account showing the last inventory of the product. At the closing periods, the cost of product for the period is closed into it, the inventory at the end of the period credited, the balance closed into sales account. The rule for ascertaining the cost of the sales is as follows:

> To the inventory at the beginning of the period add the cost of the product manufactured during the period; deduct therefrom the inventory of the product at the end of the period; the result will indicate the cost of the goods disappeared, or cost of sales.

The mill manager regards the information of net returns from sales as very important and Exhibit F, "sales account," presents a process of presenting this information in the manner which appears to be generally desired, which requires no explanation.

Income Account

On account of the indefinite meaning of certain terms in the practice of accountancy, modern accountants are drifting away from the use of such terms as do not convey precise and definite meanings.

The terms "merchandise account," "expense account," and "profit and loss account" are examples. Who could render a satisfactory definition to either of these terms that would be consistent with the practical use of them by bookkeepers throughout the country?

"Merchandise account" may mean the inventories, purchases and sales, or may not. "Expense account" may mean certain classification of expenses, petty expenses, or various sorts of expenses.

"Profit and loss account" may mean that it is an account used to close operating accounts into, or may not; it may be meant that its purpose is to indicate the undivided profits for a certain period, or for the entire period covering the history of the books.

It is seen that the general uses of these terms by bookkeepers and accountants through years of practice precludes the possibility of consistently defining them, and for this reason the writer is in accord with some modern practitioners in holding that the use of these terms upon commercial books and auditors' reports and examinations should be improved upon by bringing into use terms with more definite meanings.

If the "merchandise account" is intended to indicate that it embraces purchases and sales, why not use the terms "merchandise purchases and sales?" If intended to mean purchases only, why not use the term "merchandise purchases?" If intended to mean sales, why not use the term "merchandise sales?" If the "expense account" is intended to mean petty office ex-

penses, why not use the term "unclassified office expenses?" If intended to mean petty mill expenses, why not use "unclassified mill expenses?" If the "profit and loss account" is intended to mean the account into which all operations are closed to determine the profits or losses, why not use the term "income account?" If intended to mean the undivided profits, why not use the term "undivided profits account?" If intended to convey the deficit, why not use the term "capital deficit account?"

For reasons indicated, the term "income account" is selected as best adapted for the purposes as illustrated in Exhibit G for cotton mill accounting.

Exhibit H, "undivided profits account," should in the case of a balance of profits show this balance and the appropriations thereof. The debits of this account should represent or be supported by directors' resolutions in all cases.

The Audit of Banks of Discount and Deposits

By Melbourne S. Moyer, B.C.S., C.P.A.

This series of articles presupposes a knowledge of commercial audit procedure from the public accountant's standpoint, but only such knowledge of the routine workings of a bank as a public accountant might acquire from outside the railing.

The audit of any financial institution is peculiar in that the auditor must possess an *intimate* knowledge of the details of the business before beginning work. When examining almost any other kind of business, the auditor is able to acquire much information about details after the audit has been started, but with a financial institution changes in the assets are so rapid and can be so easily made that the bank auditor must have every move planned long before making it.

A bank audit should be begun just at the close of the day's business; and the first thing to do is to get all the tangible assets under control. This is accomplished by placing seals on the safes containing the securities, the collaterals and the discounts, or by placing an assistant in charge of those not sealed.

If the auditor has only one assistant the securities, collaterals and discounts must be sealed as the auditor himself will have to take charge of the first (paying) teller's cage while his assistant is placed in charge of the second (receiving) teller's cage to count the cash.

The seals usually employed are the paper kind used by notaries, but of a larger size—two and a half or three inches in diameter—and, preferably, printed with the auditor's name and serially numbered. If they are plain they should bear some pen inscription which has penetrated the glazed surface. These seals are placed so that the safe door cannot be opened without breaking them. Sometimes wax is used, but unless very special care is taken to see that the wax does not congeal before taking hold, it will be found very unsatisfactory. All seals should be examined very closely before being broken.

United States Treasury Department seals, to which reference is made later, are in general appearance and operation similar

to those used on freight car doors. They are discs of lead, slightly smaller than a quarter dollar with two holes bored through them. They are used to seal coin bags in the following manner. After a bag has been sewn shut, the two ends of the cord are run through the holes of the seal and a press is applied. This makes an impression on the lead and also flattens it to such an extent that it grips the cords firmly so that the bag cannot be opened without defacing the seal.

That part of the cash composed of paper currency can be most conveniently handled by having it brought out and piled up on one side of the tellers' cages and placing it on the other side as counted. It is, of course, understood that no currency is to be removed from any of the cages after the counting has been started until after the cash has been proven. Each man who is counting should make his own list. These are afterward assembled and compared with the teller's proof.

In counting the cash composed of coin, the easiest method is to weigh it. This should be done in the vault, as its removal is something of a longshoreman's job. One bag can be counted—or in the case of silver dollars, halves, or quarters, stacked—and then replaced, and this bag used as a weight to balance the other bags. Each bag, except those bearing a Government seal in good condition, should be opened and "samples" taken from the bottom and middle should be seen. While doing this it is wise to roll up the sleeve as it would prove rather embarrassing for an auditor to have a gold piece fall out of his cuff as he was leaving the vault. If this precaution is not taken, tellers are inclined to view the sampling operation with alarm and sometimes suspicion.

Checks on other banks in the same city, found on hand, should be assorted according to the bank on which they are drawn, if this has not already been done, before being listed on the adding machine to check with the teller's proof. Such items are called exchanges. Where there is a central place of meeting for their transfer and for the settlement of the resulting balance, they are called exchanges for the clearing house; otherwise runner's exchanges.

After the exchanges have been proven, each bank's items

should be enclosed in a separate envelope—this will be the rule of the clearing house where there is one—and sealed by the auditor or an assistant. There should be enclosed with each bank's checks, a stamped envelope addresed to the auditor's office and a letter worded about as follows:

" This envelope contains items on your bank amounting in the aggregate to $10,325.47. If any of these items are returned unpaid, please list them in detail below and, if not, please state that fact. A stamped and addressed envelope is enclosed for reply.

" Very truly yours,
" C. P. A., *Auditor.*"

" You are authorized to furnish this information.
" J. SMITH, *Cashier.*"

Bankers as a class are exceedingly cautious about furnishing information to outsiders concerning the affairs of those who deal with them. Hence the note at the bottom of the foregoing letter. Even with this note appended at least one cashier will be found in even a medium sized city who will mail this confirmation and the envelope to the cashier of the bank which is being examined.

The envelopes containing the exchanges should remain under the auditor's control until he or an assistant has seen them delivered to each bank's representative at the clearing house, or in the case of runners' exchanges, they are handed through the teller's window of the banks on which they are drawn. In practice it has been found most convenient, after these envelopes have been sealed, to put them into the bag for working papers which is protected by a Yale lock and then turn the bag over to the teller to keep until ready for the clearing in the morning. It might be well to remark at this point that where two or three such bags are at the auditor's disposal, the discounts may be handled in the same way instead of sealing the safe. If the bank does a collection business or receives many deposits by mail, there will be quite a few checks received the next morning which will have to be added to the lot prepared the previous night, before attending clearing. These morning checks, with the preceding night's envelope, can be enclosed in a larger envelope if two are objectionable. In no circumstances should any one connected with the bank be permitted to open one of the envelopes sealed

the night before nor should those items be mixed with the morning's mail.

Letters should be written to the bank's correspondents the night the examination begins, transmitting all of the out-of-town checks embraced in the "cash." These "remittance" letters should be checked, sealed and mailed by the auditor or one of his assistants.

The "correspondents" of a bank are those out-of-town banks to which it sends checks, notes, and drafts for collection and with which it has a running account. In very large cities a bank may have correspondents in distant parts of its own city—a large Wall Street bank, for instance, will have a Harlem and a Bronx correspondent. The bank receiving the collections remits semi-weekly, weekly, every ten days, or semi-monthly—rarely at longer intervals—usually at par in exchange on the nearest reserve city. Sometimes this sending of checks is done by both banks, the debtor bank remitting on the agreed settlement days. This is usually the case between one country bank and another. Between city and country banks, except where reserve agents are concerned, the current of items for collection usually moves only one way—towards the country. On account of the funds that the business places in their hands, which they may use in making loans, some banks make collecting a feature of their business. A case in point is a Pennsylvania bank that collects the items in its vicinity for ten New York and twenty-five Philadelphia banks.

All cash items should be listed in detail with enough description to permit their identification, and later they should all be traced to final payment. This is a much abused heading in banks which are not properly conducted. For that reason each item, if its amount entitles it to any consideration, should be investigated with special care. Also a bank will be found occasionally which charges off its expense bills periodically, paid bills being carried as cash items until they are to be charged off. In a case of this kind all the bills should be charged to undivided profits when making the adjusting journal entries.

"Discounts" is the banker's generic term for notes discounted, time loans, and demand loans. It serves to distinguish paper owned by the bank from that which it holds for collection

only. The discounts maturing on the day after the examination is begun, and—depending on the routine of the particular institution—possibly those maturing on the second day following, will have to be inspected, so that they may be available for business before the bank opens or very early in the day. On account of the extreme pressure under which the first day's work is done, all that is necessary, for the time being, to verify these discounts is to check them against the "tickler," merely seeing that the names and the amounts, and the number, if any, are correct. Collection items are not dealt with until they are paid. The " tickler " is a record in which the notes are entered as discounted, or as received in the case of collections, according to the date of maturity. It is sometimes called a maturity record. A page (or a card) is allotted to each day. Usually two ticklers are kept—one for discounts and one for collections. Some banks make a further division by having a different book for each month and a separate one for collections and for discounts, while others combine discounts and collections for several years in one book using different colored inks to distinguish them.

The audit of state banks of discount and deposit and national banks does not differ up to this point, except that a state bank may have one or more branches. In such cases the procedure at all the branches is the same as at the head office. The examination of the branches must be started and carried on simultaneously with the head office examination. Of course, no securities will be found at the branches.

This completes the first " day's " work. The time will be anywhere between midnight and sunrise, or even later, depending on the size of the bank and the number of the assistants engaged on the work.

The Mission of the Certified Accountant *

By Eli Moorhouse, F.C.A., C.P.A.

A primary requisite for the young man seeking to enter the profession of the certified accountant is a first-class general education, and this not so much because of the actual knowledge he may acquire of different subjects, but in order that his mind may be so trained by the diversified work which is put before him during his school career that he may be competent and sufficiently broad minded to handle the various business problems presented to him in later life for solution in a manner at once technical and at the same time equitable to all interests concerned.

While the budding accountant must of necessity keep before him a broad minded ideal, yet he must be so large minded that he does not overlook the value of infinite detail. He must be as deep as he is broad and be able to concentrate his mind and attention on the work in hand, to the absolute exclusion for the time being of all extraneous matter. A most valuable training in concentration of mental powers and the development of an analytical mind is the study of higher mathematics; indeed if the young man has not a love for solving algebraical and geometrical problems during his leisure hours he may very well question whether in later life the intense application necessitated in the pursuit of his profession will not become to him drudgery instead of (as all life work should be) a joy and pleasure. For example: if the accountant, as he slowly and gradually works out in his mind and gathers into a cohesive whole the various data making up an intricate cost accounting system, does not experience a thrill of delight as he sees his creation taking practical working shape then he has missed something of the joy of creative work.

The young accountant in addition would do well to take up the study of logic; also political economy particularly as applied to present day problems, toward which his viewpoint should be as liberal as possible, always with the underlying idea that this preliminary training is useful not so much for the actual knowledge acquired but because of the resulting ability to think out

* A Paper read before the Washington C. P. A. Society.

clearly and solve scientifically and impartially the various problems he will meet in his future career.

The education of the accountant roughly divides itself into two sections; preliminary and technical. Much depends upon the individual and his environment as to his progress in the technical knowledge of his profession. The system of "articles" obtaining in Great Britain in some cases turns out first-class all-round accountants, while in other cases it apparently breaks down utterly. The profession in the United States has not as yet developed sufficiently to sanction any one method as being the best for the acquirement of a technical accounting education. Evening classes, correspondence schools and university courses are all, as it were, still on trial; but however well these various aids may be managed, nothing can take the place of broad practical experience when the latter is combined with intense application and perseverance on the part of the young student. It is true that considerable time must be given to acquiring theoretical knowledge, technical definitions, and a certain amount of common law as applied to every-day business problems for the purpose of passing with some degree of merit the various state examinations; yet the mere acquirement of book knowledge, whether by cramming or otherwise, is not and should not be all that is essential to the obtaining of a C. P. A. certificate. The ideal way in which to acquire a thorough grounding on the technical side of his future profession is for the young man to combine systematic reading with practical experience obtained in an office, (not too large, for he is apt to be overlooked and get into a routine of work) followed up, if necessary, by a few months of special application immediately prior to taking the examinations.

The very best general education, followed by exceptional opportunities for experience cannot in themselves develop the qualities most essential in a certified accountant. The rapid growth of business during the past few years; increasing competition, necessitating extremely close selling, and the elimination of needless expense; the manager's need for complete information of the business without the personal handling of the details; the importance of safeguarding investments—these have created a de-

mand for a specialist equipped to cope with the various problems presented. To supply this demand there has been developed the profession of the certified accountant—not the old fashioned "expert or public accountant" who was really nothing more than an expert bookkeeper—but the man having as a prime requisite business morality and fitted by a special training and broad experience to grasp the fundamental points of any business and to apply the scientific principles of modern accounting thereto. An ignorant honest man is by no means as useless to society and is certainly not so dangerous a member thereof as is a well educated man of low moral principles.

Many temptations arise in the practice of the accountant's profession to present facts in such a manner as will best please the client, at the risk of rendering his financial statements capable of misleading interpretations. For example: when the directors or trustees of a corporation employ an auditor, it sometimes happens that it would be in the interest of the stockholders if certain truths unpalatable to the directors were fully set out in the auditor's report. What is the auditor to do? Is he to tell the absolute truth, and in all probability lose a client, or so word the report as to render it meaningless and innocuous? Must he substitute expediency for the truth? Mistakes honestly made discredit only ability, but forced balances and statements intentionally susceptible to misleading interpretations destroy not only reputation and character, but one's own personal freedom of mind and conscience, if not actual freedom of body.

In short, a certified accountant must be a *gentleman* in every sense of the word, having the power to impress his individuality and at the same time create confidence as to his absolute uprightness and integrity. His financial statements must be so drawn up as to be absolutely equitable, not only to his client, but to his clients' bankers and creditors and every party that may be in any way concerned in the business. As an auditor he has to know how to handle men, and this requires not only tact and adaptability but also self-reliance, for if he cannot depend on himself how can he get others to depend on him? While he must from a business-getting viewpoint to be a good "mixer," yet in order to maintain the highest reputation for integrity and busi-

ness honesty he must in his " mixing " be wise, virtuous, discreet and reticent. Probably 90 per cent of his business will come to him not because he may be a " good sport," but because of the reputation he acquires for the character of the work he turns out. Otherwise all his efforts for publicity will fail unless supported by a foundation of character and efficiency as well as goodfellowship.

In Great Britain the accountant has attained such a position of confidential relations with his clients that he is placed in the same category as the family lawyer and the family physician, and many well known and well-to-do men never start on any new or fresh venture, or invest their moneys in any unknown or new company without first consulting with their " family accountant." To attain such a position of trust and confidential relations in this country the certified accountant must be absolutely clean in his actions and his conversation, for in our profession perhaps more than any other walk in life straws show the way the wind blows. The certified accountant must thus endeavor to show that he is not merely a statistician nor even an interpreter of figures, but in the highest sense of the words a business physician and evangelist.

In China, it is said, doctors only receive pay for the period when their clients are in good health, their pay being stopped during illness, and so the business world must be taught to regard us as watchmen, not detectives. A certified accountant should have the business interest of his client so at heart that he should not only be able, willing and eager to point out to him ways of stopping leaks, cutting costs, and bringing his business into a healthier condition from a profit making standpoint, but he should also by his personal character and example (perhaps unconsciously) impart a higher moral tone and more wholesome influence through his very connection as auditor with that business. One of the great advantages of the continuous plan of auditing is the increased number of opportunities afforded for exercising both active and passive influence on the moral tone of the clients' business and employees.

Business morality and business ethics have become exceedingly pressing questions during the last decade and so many rem-

edies are being offered in mitigation of the evils that it is not only the opportunity but the duty of our profession, composed, as it is supposed to be, of a body of men of exceedingly high moral standing, to set the highest possible moral example to the business world in general of that righteousness which exalteth a nation. For example: all certified accountants at one time or another during their business experience have come in contact with, or have been asked to do work for promoters of corporations, whose methods, to put it mildly, might be described as questionable. Have we ever gone to a prosecuting attorney and requested his aid in the putting out of business these people, or have we even thought it our duty to do so, or have we refused the business and let it go at that, or have we done the work requested of us and accepted our fee and let the promoter go his own way, swindling the widow and orphan without any further concern or protest on our part? Early this year the State of Kansas passed an act looking to the lessening of this evil. A similar law should be on the statute books of every state in the Union. As pioneers in a new profession so much time is taken up breaking the ground to make a living that we are apt to lose sight of the fact that we are in this world to make a life and a character as well as dollars and cents.

If the business world is to be bettered by the advent of the certified accountant and his profession of higher morality, it must be by the adoption and constant practice by the biggest firms as well as by the smallest practitioner of such a standard of unselfishness and integrity as shall compel by the force of example, the attention, admiration, and respectful imitation of all who behold. Then it would be a satisfaction for each of us to feel at the end of life that we had done what we could to raise the standard of our profession, and that the business and professional world was a little better because we had lived in it.

To paraphrase and adapt the wording of one of the recent admirable advertisements of the National Cash Register Company to our profession, and to show somewhat the standard to which the profession has attained in Great Britain and to which it should aspire in America:—The certified accountant should as his mission make America stand for progress, superiority and

righteousness; he should go forward not only in the name of business but in the name of better business methods; he should give the country better business men and shops full of more reliable employees; he should carry the impulse to be systematic, regular, methodical and straightforward wherever up-to-date American methods are known; he should exalt the square deal and prove the profit that lies therein.

He removes temptation from the path of the multitudes and so advances the welfare of his country because he delivers the best made, the most accurate and most reliable financial statements produced in the world, and thereby creates a world-wide confidence in all financial statements signed by an American certified accountant; but our profession must fulfill a mission even bigger than that. It must stimulate integrity in America; it must symbolize the integrity of America throughout the world; it must be the master pioneer—the blazer of the way—the missionary; it must preach a mighty gospel in the name of a mighty people, honored by all flags, by lifting business to a keener and cleaner plane because it stands not only for efficiency, economy and system, but above and beyond all for business morality and honesty—common everyday honesty.

Industrial Management

By Hugo Diemer, M.E.

Professor of Industrial Engineering, Pennsylvania State College, and Consulting Industrial Engineer

Industrial management is one of the most important economic factors of our time. It is intimately related to problems of individual and national welfare. Hence any improvements that tend to lessen waste and promote health, wealth and happiness in any of the fields of action or departments controlled by the industrial manager are full of a human interest and appeal over and above any technical merit.

Efficiency in industrial management involves efficiency in each of the various divisions with which any management has to deal. A general list of the fields of action covered by industrial management in which there is opportunity for developing efficiency, would include the following: (1) Finance, (2) general management and organization, (3) accounting, (4) production, (5) distribution, including selling and advertising.

Efficiency in Finance. Many concerns are overburdened by reason of the financing not having been accomplished with the best judgment and ability. More money than necessary may have been spent in promoting. Again, if properties, patents or good will have been paid for by shares of stock, the amount of stock given in payment may have been excessive. In either of these cases the establishment is loaded with a burden of which it cannot rid itself. On account of this well-known fact it frequently happens that a man who is primarily a financier is put at the head of an industrial establishment; and we are then afterward confronted by the condition that although our financing was efficiently done, we have a man at the head of the business who is primarily a financier and knows nothing about manufacturing. He is carried on the pay-roll at a heavy salary, which becomes a constant drain on the establishment. In the case of a bank or brokerage house, this type of man is valuable every day. On the other hand, from the standpoint of the best interests of the

manufacturing concern, he is valuable only in cases of financial crisis and is frequently unable to present the true state of internal affairs of the factory to the ultimate ownership.

Efficiency in General Management and Organization. There is a wide field open to investigation as to the kinds of departmentalization which have proven most effective in various industries. Another question is that which deals with the extent to which departmentalization shall be carried in various sizes of the same industry—for example, the determination of what is the best form of departmentalized organization for a steam engine manufacturing company employing 150 men as compared with the departmentalized organization for similar companies employing, say 300, 600, 900, or 1200 men.

Efficiency in general management demands definite knowledge of methods of securing individual effort and enthusiasm as well as departmental co-ordination. It demands a knowledge of what has been accomplished by department meetings, by meetings of line officers with separate staff heads, by club, athletic and welfare work among employees, and other means of securing good will and loyalty.

It demands definite knowledge as to how far matters of policy and general procedure may be made the subjects of thought and discussion by men in the ranks and the lower officials as well as by higher officials; and on the other hand, to what extent methods as well as results shall be considered and initiated by the higher authorities.

Efficiency in Accounting. At the head of the accounting department we must have a man who knows how to prepare a balance sheet that will stand the criticism of the most conservative auditor on the one hand; although on the other hand he must be so conversant with current practice as not to fail to list as assets everything to which his company is justly entitled. He must know what constitutes undervaluation as well as what constitutes overvaluation.

He must see the advantage of co-ordinating the manufacturing records with the accounting system. He must realize the great advantage accruing from carrying in terms of money such records as the current accounts of stores, of raw materials, of

work in process, and finished stock, and closing these into a monthly balance sheet. He must appreciate the advantage of differentiating the expense accounts so as to allocate them to different kinds of product in a manner that will represent the true costs and true profits of different kinds of product so as to enable the concern making the varied product to compete on the basis of actual knowledge of true costs with a concern specializing in only one of the varied products which his company makes. Here again the old-fashioned bookkeeper type of accountant who urges for a single expense rate based on the old-time percentage plan, because in his opinion it costs less to get this than a differentiated hourly expense rate for the different kinds of product, is wholly out of place and distinctly harmful to the interests of the ultimate ownership in an industrial establishment.

An efficient head of an accounting department needs to have a broader view of his sphere of action than is possessed by a mere bookkeeper. He must be broad-minded enough to avoid blocking the path of progress of the progressive works manager by clinging to old-time methods. The particular old-time methods which he needs to revise are those which have to do with manufacturing and expense accounts. These he needs to rehabilitate so as to show every month or very four weeks classified profits and losses on product and classified expenses per unit of product and per unit of time.

Efficiency in Production may be said to include efficiency in plant, in equipment, in machine and tool processes, in handling of materials, in labor operations and in supervision.

Efficiency in factory location demands a knowledge of economic and trade conditions acquired only by a very careful study. Efficiency in buildings and the arrangement of departments in these buildings requires a careful study of process mapping and of the types fitted to different classes of industry. Efficiency in equipment requires a technical knowledge of all of the processes involved. Efficiency in labor operations and supervision requires a thorough knowledge of wage systems and internal factory organization as applied to different types of industry. The problem for one industry is

always a problem by itself, yet industries can be classified and types of control can be selected which are best adapted to certain types of industry.

Efficiency in Distribution and Selling. There are many correspondence courses in salesmanship offered at the present time. A study of any of these courses will reveal the large field open for work in the interests of greater efficiency. Efficiency in the selling department recognizes the fact that it is not quantity of sales which merits extra pay. That particular salesman or selling office is entitled to the greatest reward who has sold goods on which the manufacturer has made the largest profits, whether it has been the result of quantity of sales or of careful selection, with an effort to sell those things on which the manufacturer could realize the greatest profit.

Progressive efficiency in selling demands extensive research work in various industries to accumulate data covering the methods and actual costs of selling. It is only by the accumulation and comparison of such data that we, as a nation, can make progress.

Finally it must be recognized that economies in production together with lower costs of manufacture will result in continual manufacturing activity only if some corresponding reductions in selling prices are made. National and international economy demands that production of all kinds be maintained at a maximum; and in order that this condition may exist, we must be content with such profits as will provide fair returns in the way of dividends on actual investment, sinking funds to cover depreciations and a reasonable reserve for bad business years. After these obligations have been met, however, there is no justification from an economic standpoint for adding any further profit over cost of production to increase selling price.

Kind of Education that Best Will Further Efficient Industrial Management. So far as efficiency in production goes, it has generally been taken for granted that a technically educated engineer is well fitted for bettering such efficiency. This assumption is not so well founded as it might seem at first thought.

Cost of production includes power costs only to a small extent and knowledge of machine design to a very small extent indeed.

Yet we have aimed heretofore in our engineering colleges to develop industrial managers by giving our students courses which are almost exclusively devoted to instruction in power plant theory and descriptive matter and to a very elementary class of machine design.

Each manufacturing industry has its own peculiar manufacturing process. The tendency of the times is toward the establishment of a definite science for each of these processes. Processes other than power generation consume the greater cost of production.

In a few industries such as the glass and steel industries, power costs represent a large percentage of total costs. On the other hand in the machine building industries, power frequently represents as low as five per cent. to seven per cent. of the total cost. The labor cost in some of these industries may be ten times that of the cost of power, whereas supervision and factory expenses may be nearly as high as the cost of labor. Some of the schools of business administration connected with universities have offered courses in general business in accounting, in insurance, in transportation, in banking, and as preparation for the consular service. None of them has offered a course preparing directly for manufacturing. Such a course must of necessity be a combination of a course in business administration and a course in engineering. The writer, in his experience as a consulting expert in installing factory wage systems, had occasion to test college graduates from various institutions. He put the graduates from several well known schools of business administration side by side with graduates from engineering colleges, and found that while the latter showed a remarkable lack of knowledge of business principles and accounting, yet even with this handicap they were better adapted to filling positions in such factory departments as planning, tracing and cost departments than graduates of the business course whose ignorance of engineering and manufacturing methods was a greater disadvantage to them than the engineering school students' lack of knowledge of business practice and accounting. The writer has endeavored to meet this difficulty by the medium of the course in industrial engineering as offered at the Pennsylvania State College.

The four years' course in industrial engineering, as given at the Pennsylvania State College, prepares the student desiring to enter industrial organizations in positions leading to superintendence, purchasing, selling, scientific management and corporation officerships. It aims particularly to prepare for the bettering of industrial efficiency. It prepares the graduate for the competent handling of such subjects as departmental management in factories, determination of costs, depreciation, manufacturing statistics, proper distribution of expense, economic production, systems of remunerating labor and raising labor efficiency, the handling and recording of stores, stock, and orders, sales, purchasing, planning of production and production methods, corporation accounting, and allied work, leading ultimately to superintendence, works management and general management.

For the purposes indicated well-trained engineers are required; hence the course includes all the fundamental engineering work in mathematics, drawing, physics, chemistry, machine design, heat engineering, mechanics, hydraulics, and structures that are common to all other engineering courses of the school of engineering. But more time should be and is given to such general studies as industrial economics, logic, and psychology; also to specialized work in accounting, factory management, shop time study, machine tools and methods, factory planning, and more shop practice in general than is offered in some other engineering courses. The study of logic, psychology and economics is intended to give the student the underlying foundations for acquiring ability to get along with men as a shop executive, a salesman, purchasing agent or business manager, and to arrange and plan his work logically and systematically. The large amount of shopwork and shop methods, corporation accounting, cost accounting and factory economics will give him a grasp of these matters which should be of material value in manufacturing processes.

The course offered is in line with replies received from many manufacturers to a canvass of them to get their opinion as to what studies best train for their industries.

I do not wish to be misunderstood as claiming that we can by any system of education prepare young men so that imme-

diately after graduation from some kind of a college or university course they can be full-fledged managers or production engineers. The work of industrial management is of such nature that it requires not only thorough preparation, but the stability of age and practical experience which should cover, not only a period of at least ten years, but varied fields of work. The school can, however, develop an aptitude as well as a desire to fill certain minor staff positions in the management of industrial enterprises, so that a technical graduate may, after serving his apprenticeship of several years, be able and willing to assume the duties of foreman or head of some shop department, or some department such as production, tracing, stores, cost, employment, or purchasing. I do not wish to advocate the supplanting of the shop foreman who has advanced from the ranks of the craftsmen by college-trained young men who have completed their apprenticeship, nor shall we ever have such a condition. But I claim that we should have (and I believe that we are bound to have) an increasing number of technical college graduates filling positions in practically all of the departments of manufacturing corporations, instead of in only the designing, drafting, and testing departments.

Accounting between Life Tenants and Remaindermen

By Frederick Vierling, LL.B.

Trust Officer of Mississippi Valley Trust Company, St. Louis

(*Continued*)

Another basis than that already discussed for the amortization of the premium on the bond and one which appears the correct basis in the opinion of the writer, is the basis herein designated as the scientific basis. In the scientific method the income basis of the bond as an investment is determined at the time of purchase by the trustee. Instead of going through the labor of the calculations necessary, reference is had to a standard bond table to ascertain the income basis of the bond at its cost. Interest for the first period is then calculated on the cost amount of the bond and the proceeds of the first coupon are then credited in part to income and in part to principal of the trust estate, the amount to be credited to income of the trust estate for the first period being the amount determined to be the income on the cost of the bond on the income basis of the bond, and the balance of the proceeds of the coupon is credited to principal of the estate and applied against the cost of the bond and bringing the cost value down by the amount so applied. Then interest for the second period is calculated on the reduced cost of the bond at the beginning of the second period, and on collection the proceeds of the second coupon are credited in part to income and in part to principal of the trust estate, the amount to be credited to the income of the trust estate for the second period being the amount on the income basis of the bond determined to be the income on the cost reduced as aforesaid, and the balance of the proceeds of the second coupon being credited to principal of the trust estate and applied against the decreased cost of the bond, as decreased by the amortization from the proceeds of the first coupon. This process is continued with the proceeds of each coupon and at the maturity of the bond the amortized amounts will aggregate the premium paid on the bond. Also by the above

scientific method no attention is paid to the matter of reinvesting amounts reserved from the proceeds of the coupons from time to time.

In general practice the trustee does not work out all the calculations necessary to apply the proceeds of the bond coupons in the manner suggested, but reference is had to bond tables prepared for the purpose and the application is made from the figures shown in such tables. Where bonds are purchased between interest periods, a further adjustment for the first fractional period must be made on the same principles; also in the event of the sale of the bond before maturity during an interest period.

The reverse of the above operation (explained as to a bond received or purchased at a premium) is applied in the case of a bond received or purchased at a discount below par. In the latter case the proceeds of the coupons from time to time will not equal the income basis of the bond, and the amounts due the life tenant from time to time should be made up out of other funds in the trust estate. If the estate has not ample funds from time to time to make up to the life tenant the amounts so due, in order to remain in position to promptly and in full make the payments due the life tenant the trustee should refrain from investing in bonds at a discount. As to the remainderman, the investment in bonds at a premium or at a discount is immaterial.

In the event of the sale of a bond by the trustee at an amount in excess of the amortized value of the bond at the time of sale, such excess should legally be considered an increase in value by appreciation and credited to the principal of the trust estate; a decrease should be considered a loss by depreciation and charged to principal of the trust estate.

As above noted, under a bequest of specific bonds the face value of the bonds is determined by the testator as the principal of the estate to be held in trust for the remainderman, notwithstanding the market value is above par or below par, and the life tenant is entitled to the income on the face value of the specific bonds at the contract rate of the interest thereon. In case of a residuary bequest, if the residue should consist entirely or in part of bonds held by the testator and having a mar-

ket value above or below par, on receipt of such bonds by the trustee for a life tenant and remainderman the question at once arises whether the life tenant should receive interest at the contract rate on such bonds not specifically bequeathed, or should the trustee in his accounts enter the bonds included in the residuary bequest at their market value and consider such value as the cost to the trust estate of such bonds, and on the basis of such value amortize the premium or discount as interest is collected from time to time. In the opinion of the writer such amortization should be made. In the distribution of the bonds to the trustee they are necessarily distributed by the executor at their market value and received by the trustee at such value instead of their par value. In case of the specific bequest of bonds the testator is conclusively presumed to have fixed the amount and kind of securities upon which the life tenant is to receive the interest as income. In case of a residuary bequest the rule is that the life tenant is entitled to the net income on the clear residue when ascertained. To determine the value of the clear residue of the estate, any bonds and shares must be taken at their market value at the date of death of the testator. A share of stock having a market value of $200 per share would not be taken at its par value of $100, unless specifically so directed. No more should a bond be taken at par if its market value is above, unless specifically so directed.

If the residue of an estate consists entirely of cash and is bequeathed to a trustee, and if soon after the date of death the cash is paid over to the trustee for investment and invested in bonds at a premium, it is clear that the principles of amortization should be applied for the protection of the remainderman. It seems to the writer to follow that if the residue consists of bonds invested in by the testator, the bonds should be received at their cash value, unless there is an express direction of the testator to the contrary.

Suppose that pursuant to authority a trustee one day after the receipt of bonds under a residuary bequest sell such bonds at their market value, the sale being presumed to be on an interest payment date of the bonds, so no question of accrued interest is to be considered, would not the trustee credit the

proceeds of sale to the principal of the trust estate and hold the amount in principal for the remainderman? There would be no question as to the propriety of his so doing. Any investment of the trust funds thereafter would be upon the basis of the principal so fixed. Should not the principal of the trust estate be fixed at the same amount in a case where there is no sale of the bonds, as well as in a case where a sale is made? The writer answers, yes; that the law does not leave the fixing of the amount of the principal of the estate to the chance of a sale of bonds by the trustee; that impartiality to the remainderman and life tenant requires the bonds to be taken at their cash or market value at the death of the testator, in the absence of an express direction of the testator to the contrary; that since the bonds are to be taken at such value, impartiality to the remainderman and life tenant requires the amortization of the premium as discount as coupons are collected from time to time, so that the life tenant will receive all of the net income on the value of the bonds at the taking effect of the bequest, but no more or less, and the remainderman on the termination of the life estate will receive the full value of the estate bequeathed, but no more or less. Any profit by appreciation or loss by depreciation, in the event of the sale of the bonds by the trustee at a price other than their amortized value, should be credited to or charged against the remainderman and by the trustee entered in the principal of the trust estate, as is required in case of bonds purchased by the trustee.

It is the rule that premiums received on investments should go to credit of principal of a trust estate, being considered as in the nature of a profit by appreciation. This certainly is true in the case of a bond not redeemable before maturity and purchased by a trustee at a price and subsequently sold at a higher price. In the event a bond is issued to mature at a fixed period, with a provision that the obligor may call such bond before maturity at some fixed premium above par, on purchase by a trustee of such a bond the trustee cannot presume that the bond will be called before it is payable and he must make the investment on the basis that the bond will remain outstanding until it matures. If the bond is purchased at a premium the prin-

ciples for amortization of the premium should be applied, and from interest period to interest period the cost of the bond in the account of the trustee should be adjusted accordingly, until redemption of the bond according to provisions for its call before maturity. If the call is upon an interest payment date, the proceeds of the last coupon collected are adjusted on the usual amortization basis of the bond, and the proceeds of collection of the principal of the bond will call premium thereon are credited to principal of the trust estate. If such proceeds with premium are more than the then amortized cost of the bond as carried in the account of the trustee, a profit by appreciation to the principal of the trust estate is the legal result, and if less than such cost a loss by depreciation is the legal result. If the call is made between interest periods, the proceeds of the interest accrued from the last matured interest coupon should necessarily be adjusted on the amortization basis for the fractional period.

The question of the amortization of premiums paid on bonds purchased by trustees has been before our courts a number of times and the conclusions reached do not coincide. All courts primarily endeavor to give effect to the clear intent of the trustor, as expressed in the instrument or will creating the trust. (A) In a Connecticut case the trustee bought securities at a premium and it was held that the trustee ought to withhold from the life tenant annually such part of the income as by proper investment would create a fund equal to the premium paid. (B) In an early Massachusetts case the loss of premium value of bonds bequeathed in trust was placed on the remainderman; and loss of premiums paid by the trustee on bonds purchased by him after the death of the testator was also placed on the remainderman. In a later case in the same State the court held that on collection of interest on bonds purchased at a premium the trustee should deduct a sufficient sum from the income to make good to the remainderman the amount of premium paid. And in a case in the same State subsequent to the two cases mentioned, the Court placed the loss of premium on the remainderman; apparently receding from the second case and going back to the ruling of the first case. In the last case the

court did not attempt to reconcile the two prior cases. (C) In a New York case (187 N. Y.) overruling older cases in point, the court held the loss of premiums paid on bonds falls on the life tenant, basing the decision on the ground that premiums on bonds are paid to purchase an increased rate of interest. In the same State it is held if bonds are bequeathed in trust, then the loss of the premium value falls on the remainderman. (D) In a Wisconsin case where a trustee invested trust funds in bonds at a premium, the Court held he should restore to the corpus of the estate from the interest on the investment the amount of premiums paid.

In connection with the use of bond tables in the amortization of premiums and discounts on bonds, it may be interesting to consider upon what principles such tables should be constructed. Some bond tables are prepared upon the supposition that the amortized amounts from time to time reserved out of the proceeds of the interest coupons are reinvested at compound interest on the very date of the maturity of such coupons respectively and at the income basis on which the bond was purchased, and that each investment is until the exact maturity of the respective bonds. Thus it is assumed that each amortized amount out of the proceeds of coupons from a bond netting 2 per cent. interest on its cost is immediately reinvested at 2 per cent. compound interest until the exact maturity of the bond from which the coupons are detached; also that each amortized amount of the proceeds of coupons from another bond netting 7 per cent. interest on its cost is immediately reinvested at 7 per cent. compound interest until the exact maturity of the bond from which the coupons are detached. Such assumption appears to be legally wrong. In the first place, it is the duty of a trustee to invest trust funds at a rate not less than the prevailing rate of interest for the time being, and on a 5 per cent. money market the trustee would not be protected in making an investment of 2 per cent. except in a government security, and then only on the theory that a government bond is an investment particularly favored by law: further, as a matter of law the trustee is not expected to make a new 7 per cent. investment on a 5 per cent. market for good investments. In the second place, it

is utterly impossible for a trustee at each interest period to secure a compound investment for the exact unexpired period until the maturity of the bonds from which the respective coupons are detached. In the third place, a trustee is not expected to make simple or compound investments of small amounts, such as are the amortized amounts reserved from proceeds of interest coupons at any rate of interest on cost of a bond. The trustee is expected to do only what is practicable and possible in the making of investments, and the trustee may without being accountable as for loss of interest hold funds in the trust estate from time to time and in the aggregate considered reasonably small with respect to the value of the estate as a whole, and any necessary loss of interest by reason of the practical impossibility of making small investments is legally a loss to the life tenant. It could not be argued as to regular partial payments on a note from time to time, however small, that no proportionate reduction should be made in interest accruing on the note according to its terms after the respective payments and that such reduction in interest should be dependent on impossible or assumed reinvestments of the partial payments from time to time. On the application from the proceeds of interest coupons from time to time of a part of such proceeds as on account of the return of the premium cost of a bond purchased by a trustee, it would seem the same principles should prevail, as the bond is purchased with the fixed intention that partial credits should be made from time to time on the premium cost out of the interest proceeds. When funds accumulate sufficiently to make an investment of the same, it is then the duty of the trustee to invest and thereafter the life tenant is entitled to the actual interest earned by such investment and not to an assumed income thereon. Other bond tables are prepared upon the supposition that the amortized amounts from time to time reserved out of the proceeds of the interest coupons, on the very day of the maturity of such coupons respectively, are invested at a fair, yet arbitrary and fixed, rate of interest and perhaps the same, or greater or less, than the net income rate on the cost of the bond, depending upon the circumstances of each particular case. Such other bond tables modify one criticism made as to the

former, to wit: It is assumed the amortized amounts are immediately invested out of the proceeds of each coupon at a compound assumed fair rate of interest, instead of a rate varying according to the net income rates on the cost of the respective bonds; but the amortized amounts collected on a given day, regardless of the net rate of interest on the costs of the various bonds, are all presumed to be immediately invested at compound interest and each to the maturity of the respective bonds from which the coupons are detached, all at the assumed fair rate of interest. In view of the rules of law above mentioned, as to the duty of a trustee to accumulate and when possible to invest small amounts of trust funds in his hands from time to time, the writer, as an attorney, takes exceptions to the principles of preparation of either of the bond tables last above mentioned, he being of the opinion that the scientific bond table, constructed as above explained, is correct; in it no uncertainties are assumed to be facts.

The Journal of Accountancy

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EDITORIAL

Differing Opinions Should Find Expression

It is to be regretted that the articles appearing in this Journal on questions of a more or less controversial character do not stimulate discussion which would serve to bring out more fully both sides of questions at issue and would add greatly to the value of the original contributions. The Journal is always ready to throw its columns open to intelligent discussion of any such questions and to afford the author an opportunity of replying to his critics. In this way the true strength or weakness of his position can be more clearly shown than by a single article in which the contributor may choose his own ground and the arguments he combats for himself.

The article of Mr. A. Lowes Dickinson in the December number on the subject of including interest and rent in cost has elicited only one letter of comment and yet there are undoubtedly among accountants and other readers many whose views would differ very materially from those expressed by the author of that article. It is by no means unusual for engineers and accountants to provide in cost systems for the inclusion of interest as part

of machine costs; and among bankers it is, we believe, a general practice to regard interest as a part of cost not only in the purely banking transactions but also in the commercial and industrial matters in which they are involved. Cannot some of those who approve of such treatment be induced to come forward and give their reasons for the faith that is in them? Mr. Dickinson himself recognizes that there are many arguments based on convenience in favor of the inclusion of interest in ascertaining cost for various purposes and in his article he discusses the arguments applicable to two special cases. His suggestion in regard to the treatment of interest "paid on indebtedness for materials entering into cost where the lapse of time is a necessary part of production" is not only interesting but may perhaps form a common ground on which those who hold conflicting views can meet and agree. His discussion of the question of giving effect to the variation of the amount of capital employed and the term of employment in comparative costs does not appear to us quite so convincing.

In comparing the relative advantages of alternative policies the crucial question is frequently whether the saving in operating cost of a plant calling for a large investment will be sufficient to offset the increased interest charge, and many people will not be satisfied with Mr. Dickinson's proposal to deal with this question by a comparison of profits with investments. They will argue that to obtain true results you must distribute your interest charge and carry it through the various processes just as you would the element of direct or indirect cost which the greater investment saves.

The whole tendency of accounting in recent years has been to substitute for approximate costs calculated independently of the works a system by which costs are minutely and scientifically analyzed and ascertained as a part of the accounting system. Moreover, it is claimed with considerable force, that heads of departments will watch capital expenditures more closely if interest thereon is treated as a part of the actual cost of their department, and economy in investment is as much to be sought as economy in operation.

Mr. Dickinson's second argument, based on the difficulty of

determining the proper rate of interest to use and introducing the charge into the accounts correctly, is harder to meet and it would be interesting to obtain some suggestions on these points from those who advocate the inclusion of interest in costs.

Take the case of a company earning 12% on its capital stock and paying 8%, with its stock selling at par, and able to borrow money at 6%; and assume that the manager advocates certain capital expenditure on the ground that it will effect savings equal to at least 15% on its cost; what rate of interest is to be charged against his operations to show whether the expenditure is justified? The actual cost of the money borrowed is, of course, 6%; but it is only by the stockholders pledging their interest in the property already existing that borrowing at this rate becomes possible. On the facts stated it would seem that not less than 8%, and perhaps 12%, constitutes the lowest basis of return upon which investors are prepared to invest on that particular basis, and it may be argued that one or other of these rates should be charged. Then again, 15% must be the rate charged if the object is to see whether the manager's recommendation has justified itself.

On the whole, most accountants will probably coincide with Mr. Dickinson's views and while admitting that in many cases interest is an element which it is necessary to consider, will recommend that such cases should be dealt with by special computation rather than that interest should be included in costs for all purposes with the resulting anticipation of profit and other unsound consequences. But there is much to be said on both sides and further discussion of the question would be both interesting and valuable to the profession.

Value of "Outside Audits"

A prominent paper in Chicago recently published a column of interviews mixed with some severe criticism of accountants' certificates. This criticism was occasioned by the failure of an industrial corporation whose balance sheet seems to have been certified by an audit company about a year before the failure. The substance of the statements was that banks distrust "out-

side audits" and that certificates by independent "auditing companies" submitted with borrowers' statements are worse than valueless.

It is evident from the writer's remarks that he is only superficially informed regarding the status of professional accountants and the nature of their work, and were it not for the erroneous impression which such sweeping statements in the public press make on the financial and commercial community and the public at large, they might readily be ignored by the profession.

There is, of course, a tendency in cases of financial breakdown to place the blame on somebody, and, if accountants have been identified with the enterprise, uncomplimentary comment not infrequently attaches thereto, without due investigation being made to ascertain whether or not they have been responsible in any degree for the outcome. Many think, in a loose sort of way, that if accountants have been identified with an enterprise they are held, morally at least, as guarantors of the concern's financial integrity, regardless of how carefully the accountant's report may have been qualified in respect of values of plant and other assets appearing in the balance sheet. It behooves the members of the profession therefore to be exceedingly careful in the form of their reports and certificates, to the end that they shall not only be understood but that they shall be in such form as not to be misunderstood or susceptible of misuse. This does not mean, however, that the accountant, merely by clever statement, can evade responsibility for not presenting frankly statements of ascertainable facts.

The newspaper press and a large part of the public seldom make any distinction between legally certificated accountants and irresponsible practitioners, and the shortcomings of the latter are sometimes the occasion for general misunderstanding and condemnation of the work of accountants. In such cases the fault lies largely with those responsible for the selection of the auditor. In many cases, for one reason or another, firms and individuals of known character and reputation are passed over and stationery companies or other organizations are selected to prepare statements on which financial arrangements of considerable magnitude are entered into. Apparently, much still remains to be done by

the profession in the way of educating the public up to the point where it will readily distinguish between the members of a profession regulated by law and bound by certain standards, ethics and traditions, and those not influenced by any of these considerations.

In regard to the alleged distrust of accountants' certificates by bankers, the absurdity of such a statement is manifest to all, both in and out of the profession, who are aware that a large proportion of the accountancy work performed in this country is on behalf or at the instigation of bankers who insist as a matter of course on having financial information prepared by men who are both competent and disinterested. One of the most convincing evidences of the faith of bankers in the work of accountants is the fact that many of them stipulate in the contracts with their clients that the accounts of the latter shall be regularly audited and their financial statements prepared or approved by a firm of reputable certified public accountants; and the same provision is frequently written into the by-laws of banks, trust companies, and other corporations.

The rare cases in which reputable professional accountants may have erred, is evidence that they are human. We have reason to believe that the percentage of failure in our profession compares not unfavorably with shortcomings in the other professions, to say nothing of the costly errors and the disastrous results of faulty business and financial administration.

The Choice of a Profession

A young man who is considering the choice of a profession and is much perplexed by the question whether law or accountancy offers the better field, writes in part as follows:

"Many people are advising me to study law. They say there is nothing in accountancy and that they know of accountants who stay at home and wait for a postcard from an office notifying them to go out on a job. I believe there are more lawyers at home than there are accountants.

"Now I have a question to ask which I believe perplexes many young men. As generally put it is this: 'Is accountancy any good?' Of course this is rather vague for it does not specify in what particular respect. But I suppose it means from a monetary point of view.

"Judging from what I have learned in my business experience it is a very good profession, or, if it is not now, it will be. It seems to me that there is much work to be done by a public accountant that to-day is done by others. Even admitting that there is not now work for him, are there not many opportunities for him to use his knowledge in the service of large corporations?

"As a useful education is it not more valuable to the average man in a business office than a knowledge of law would be? Does not the certified public accountant have to possess some legal knowledge?"

Many of the questions raised by the writer of this letter can be answered off-hand by anyone with a knowledge of accountancy. For example there is no doubt whatever that accountancy as a profession is "good," from a monetary as well as other points of view.

Equally evident is the reply to his question whether or not accountancy will be of service to those employed by large corporations. And it does not seem going too far to answer in the affirmative the query, "Is accountancy of more value than law to the average man?" In ordinary office work there can be little doubt that accountancy is of more constant value than the law, and furthermore, as the writer suggests, the accountant must have some proficiency in the elements of law.

These, however, are not the important questions in the letter. The great point is: Does the profession of accountancy offer a bright future to young men?

It is obvious that every reputable profession offers a great field to the hard and enthusiastic worker. In every walk of life there is always room for the able and the proficient. But it is also true that there is no room in any vocation for the man who lacks energy, ability and integrity.

We may assume, when attempting to reply to such a question, that the inquirer is possessed of an honest purpose and has a natural inclination to the work of accounting, for without a genuine fondness for the work undertaken, even the most steadfast worker is not likely to succeed.

Assuming, therefore, that a young man has the necessary qualifications for success, what does accountancy have to offer? In the first place, of course, it offers a highly respected professional career and a comfortable livelihood. But, above and

beyond, it offers—what some of the older professions lack—an absolutely limitless field for extension for influence and activity. It has been pointed out repeatedly that accountancy, as the word is understood to-day, is only at its beginning. The modern accountant stands as it were on the threshold. What lies in front of him is unknown and will rest almost entirely upon his own constructive ability.

Business, commerce, economic conditions generally are undergoing radical changes year by year. Probably in the whole history of the world there has never been a time when greater changes have been in progress than those which are going on around us to-day. Growth of vast corporations, a world-wide tendency to concentration, the supersession of the general practitioner in business by the specialist—all these are part of the tremendous upheaval of the present. And in all these things the accountant has a vital interest. It is imperative that every member of the profession should acquaint himself intimately with economic conditions; and, because of his close association with all kinds of enterprise, he acquires a better and wider knowledge of commerce and industry than is vouchsafed to any other man. More and more as time goes on the accountant is being consulted, and his advice adopted in the general control of business undertakings. He is beginning to be looked upon as a business physician and his work is extending far and wide in fields which a few years ago would have been considered entirely outside his legitimate sphere of action.

In the light of these truths and in the prospect of even greater possibilities in the future it surely seems as though the man who has the necessary qualifications could not do better than adopt the profession of accountancy. No other profession can offer so unrestricted a scope. No other can hold out promise of greater reward for the energy of the honest and intrepid enthusiast.

Obituary

With deep regret we have to record the death of Charles Ezra Sprague, C.P.A., which occurred on March twenty-first at his home in New York. Mr. Sprague's name and works are familiar to accountants throughout the country and in his death the profession loses one of its ablest and most enthusiastic members. Among the numerous books which he wrote may be mentioned, "The Accountancy of Investment," "Extended Bond Tables," and "The Philosophy of Accounts," each of which is an authority in its own department. Mr. Sprague was president of the Union Dimes Savings Bank of New York, a position which he held since 1892. He was a Fellow member of the American Association of Public Accountants through his Fellowship in the New York State Society. From 1896 to 1898 he was president of the Board of Examiners for Public Accountants and in 1900 became a professor of accountancy at New York University. Mr. Sprague was a member also of the American Bankers' Association and was generally acknowledged to be one of the leaders in the development of eleemosynary savings banks.

Department of Practical Accounting

CONDUCTED BY JOHN R. WILDMAN, M.C.S., C.P.A.

PROBLEM NO. 4 (DEMONSTRATION)

The objection on the part of the business man to the trading and profit and loss account is that he does not understand it. The word "account" is used here in its full significance. Anything resembling an account, with balances carried down from one side to another, suggests "bookkeeping" to the business man. He insists that he does not understand bookkeeping; therefore, he does not understand a statement in the account form.

There is another objection, which, however, the business man seldom discovers for himself, and that is, that the account form of statement does not permit of comparison. Comparatively few business men realize that the first step towards comprehensive financial statements upon which to base administrative judgment is the comparison of one period with a preceding one.

Grouping items of income or expense around the business factors and arranging these factors so as to display the results of operations is the object of the ideal profit and loss statement. To do this with the trading and profit and loss account would require so many sections as to make it almost impracticable. Such an account would also contain much useless and confusing balancing and carrying down.

The statement of income and profit and loss has three distinct advantages. First, it is understood by the layman. He understands it because he would determine his profit that way if he were doing it himself. Second, it permits of the comprehensive grouping of items without the useless bookkeeping technicalities. Third, it facilitates comparison.

The facts which it sets forth are the same as those shown in a trading and profit and loss account. The manner of presentation tends however to convey a clearer impression of the situation. The form is known as a statement in "report" form. It is also called the "running" form.

In connection with the accounts of R. J. Dimlawn as set forth in problem three it will be remembered that the results of

operations for the month of May were embodied in a trading and profit and loss account.

The profit for the month exclusive of Mr. Dimlawn's drawings of $75. was $702.58. The proprietor's account, after the profit had been added and the drawings charged, showed a balance of $2,346.15.

During the month of June there was not much variation in the transactions except that Dimlawn sold a small bill of goods to a dealer in an outlying district for which he took the party's note in the amount of $384.24. The note was dated June 11, 1910, and bore interest at the rate of 6% per annum.

A trial balance of the ledger before closing on June 30, 1910, included the following items: furniture and fixtures, $350; notes payable, $10,000; sales returns, $29.99; advertising, $500; merchandise inventory, $9,854.32; wages accrued, $14.50; accounts payable, $1,845.33; cash, $2,600.06; auto expense, $76.29; wages of saleswomen, $218.75; wages of janitor, $40; proprietorship, $2,346.15; office expense, $23.75; sales allowances, $17.25; automobile, $1,200; accounts receivable, $82.43; inward freight, $71.29; rent, $75; sales, $5,319.86; insurance (expense), $5; trade discount on purchases, $187.94; commissions to saleswomen, $185.47; interest on bank balance, $18.75; purchases, $3,758.92; commissions accrued, $13.25; notes receivable, $384.24; interest accrued on notes payable, $93.67; provision for depreciation of furniture and fixtures, $10; purchase allowances, $26.50; provision for depreciation of auto, $20; purchase returns, $12.72; interest on notes receivable, $1.36; reserve for depreciation of furniture and fixtures, $20; insurance unexpired, $50; packing supplies, $98.75; accrued interest on notes receivable, $1.36; salary of bookkeeper, $60; reserve for depreciation of auto, $40; stationery and printing, $65; light, $12.86; interest on notes payable, $49.30; drawings, $100.

The inventories June 30, 1910, were as follows: merchandise, $10,463.58; gasolene, $5.40; packing supplies, $25; stationery and printing, $40; advertising paid in advance, $300; postage (charged to office expense), $2.50. Auto expense is to be distributed, 75% to inward cartage, 25% to delivery expense.

There has been an error of $1.25 made in accruing the wages

of saleswomen. The error which increases the wages accrued was discovered after the trial balance was taken off. There is also an item of $3.47 in the accounts receivable which was offset against an account payable in settlement. This is to be taken into consideration in solving the problem.

From the foregoing, together with the trading and profit and loss account in problem three prepare:

(*a*) A working sheet, in which attention is given to the planning of the accounts, so as to facilitate the preparation of the financial statements.

(*b*) A balance sheet—June 30, 1910.

(*c*) A statement of income and profit and loss for the months of June and May, 1910, respectively.

SOLUTION TO PROBLEM No. 4

R. J. DIMLAWN

WORKING SHEET—JUNE, 1910

DEBITS	Trial Balance June 30, 1910, Before Closing	Adjustments		Balance Sheet, June 30, 1910	Income and Profit Loss Items
		Dr.	Cr.		
Furniture and Fixtures	$350.00			$350.00	
Automobile	1,200.00			1,200.00	
Merchandise — Inventory	9,854.32		$10,463.58		*$609.26
Cash	2,600.06			2,600.06	
Accounts Receivable	82.43		3.47	78.96	
Notes Receivable	384.24			384.24	
Accrued Interest on Notes Receivable	1.36			1.36	
Insurance Unexpired	50.00			50.00	
Auto Expense	76.29		70.89 5.40		
Purchases	3,758.92				3,758.92
Inward Freight	71.29				71.29
Inward Cartage		53.17			53.17
Sales Returns	29.99				29.99
Sales Allowances	17.25				17.25
Delivery Expense		17.72			17.72
Wages of Saleswomen	218.75	1.25			220.00
Commissions to Saleswomen	185.47				185.47
Advertising	500.00		300.00		200.00
Packing Supplies	98.75		25.00		73.75
Salary of Bookkeeper	60.00				60.00
Office Expense	23.75		2.50		21.25
Stationery & Printing	65.00		40.00		25.00
Rent	75.00				75.00
Light	12.86				12.86
Wages of Janitor	40.00				40.00
Insurance (expense)	5.00				5.00
Interest on Notes Payable	49.30				49.30
Provision for Depr. F. & F.	10.00				10.00
Provision for Depr. Auto	20.00				20.00
Drawings	100.00				100.00

* Indicates a credit item.

WORKING SHEET—*Continued.*

NEW ACCOUNTS					
Merchandise — Inventory (new)	.....	$10,463.58	.....	$10,463.58	
Gasolene—Inventory	.....	5.40	.....	5.40	
Packing Supplies—Inventory	.....	25.00	.....	25.00	
Stationery & Printing —Inventory	.....	40.00	.....	40.00	
Advertising Paid in Advance	.....	300.00	.....	300.00	
Postage—Inventory	.....	2.50	.....	2.50	
Total	$19,940.03	$10,908.62	$10,910.84	$15,501.10	$4,436.71

CREDITS	Trial Balance June 30, 1910, Before Closing	Adjustments		Balance Sheet, June 30, 1910	Income and Profit Loss Items
		Dr.	Cr.		
Wages Accrued	$14.50	.....	$1.25	$15.75	
Commissions Accrued	13.25	.....	.....	13.25	
Accounts Payable	1,845.33	$3.47	.....	1,841.86	
Notes Payable	10,000.00	.....	.....	10,000.00	
Interest Accrued on Notes Payable	93.67	.....	.....	93.67	
Reserve—Depr. F. & F	20.00	.....	.....	20.00	
Reserve—Depr. Auto	40.00	.....	.....	40.00	
Proprietorship	2,346.15	.....	.....	2,346.15	
Sales	5,319.86	.....	.....	.....	5,319.86
Trade Discount on Purchases	187.94	.....	.....	.....	187.94
Purchase Allowances	26.50	.....	.....	.....	26.50
Purchase Returns	12.72	.....	.....	.....	12.72
Interest on Bank Balances	18.75	.....	.....	.....	18.75
Interest on Notes Receivable	1.36	.....	.....	.....	1.36
Total	$19,940.03	$3.47	$1.25	$14,370.68	$5,567.13

The working sheet above presented differs, it will be noted, from those previously shown. The variation consists in separating it into two sections and balancing each section separately. If the totals of the adjustment columns are applied to the trial balance column the result should be equaled by the total of the balance sheet column and the column containing the income and

profit and loss items. When used this way the working sheet does not establish the net profit or loss nor adjust the proprietor's account.

As used in the solution of this problem the first column in each section shows the trial balance taken from the general ledger before closing. To these figures are applied the closing and adjusting entries, after the application of which, the items are classified as between balance sheet and profit and loss items.

The journal entries supporting the adjustment column and which by the way should always be prepared by the student and not neglected as of no consequence, are given below:

Merchandise—Inventory (new)	$10,463.58	
Gasolene—Inventory	5.40	
Packing Supplies—Inventory	25.00	
Printing & Stationery—Inventory	40.00	
Advertising Paid in Advance	300.00	
Postage—Inventory	2.50	
To Merchandise—Inventory (old)		$10,463.58
Auto Expense		5.40
Packing Supplies		25.00
Printing & Stationery		40.00
Advertising		300.00
Office Expense		2.50
To set up inventories of merchandise, supplies and prepaid accounts, in closing the books at June 30, 1910		
Inward Cartage	$53.17	
Delivery Expense	17.72	
To Auto Expense		70.89
To distribute the auto expense for the month in the proportion of 75% and 25%, respectively.		
Wages of Saleswomen	$1.25	
To Wages Accrued		$1.25
For error in above account discovered after closing the books.		
Accounts Payable	$3.47	
To Accounts Receivable		$3.47
For item in accounts receivable offset against accounts payable in settlement with		

Planning the accounts means arranging the accounts so that they will be in the order in which they appear in the statements when needed. There is no doubt about the advisability of planning the accounts in the ledger. To attempt to plan them in the working sheet when solving problems is undoubtedly a waste of

time. The accounts should be entered on the working sheet, ordinarily, in the order that they appear in the problem. In so doing the opportunity for error is lessened. This order has the added advantage of getting all the accounts before one and adjusting them before having to puzzle over the arrangement.

The financial statements called for by the problem appear below:

R. J. DIMLAWN

BALANCE SHEET—JUNE 30, 1910

Assets:		*Liabilities and Capital:*	
Furniture & Fixtures ...	$350.00	Current Liabilities:	
Automobile.....	$1,200.00	Wages Accrued.....	$15.75
Working & Trading Assets:		Commissions Accrued..	13.25
Merchandise — Inventory.....	$10,463.58	Accounts Payable.....	1,841.86
Gasolene—Inventory..	5.40	Notes Payable.....	10,000.00
Packing Supplies—Inventory.....	25.00	Interest Accrued on Notes Payable.....	93.67
Stationery & Printing—Inventory.....	40.00	Total Current Liabilities.....	$11,964.53
Postage.....	2.50	Proprietorship:	
Total Working & Trading Assets....	$10,536.48	Reserves:	
Current Assets:		Depreciation of Furniture & Fixtures..	$20.00
Cash in hand and on deposit.....	$2,600.06	Depreciation of Auto.	40.00
Accounts Receivable...	78.96	Unrestricted.....	3,476.57
Notes Receivable.....	384.24	Total Proprietorship.	$3,536.57
Accrued Interest on Notes Receivable....	1.36		
Total Current Assets.	$3,064.62		
Deferred Charges to Expense:			
Insurance Unexpired...	$50.00		
Advertising Paid in advance.....	300.00		
Total Deferred Charges to Expense.....	$350.00		
Total Assets.....	$15,501.10	Total Liabilities & Capital.....	$15,501.10

R. J. DIMLAWN

STATEMENT OF INCOME AND PROFIT AND LOSS FOR THE MONTHS OF JUNE AND MAY, 1910, RESPECTIVELY

	June 30, 1910	May 31, 1910
Gross Sales	$5,319.86	$4,138.78
Less—Sales Returns	29.99	164.53
Net Sales	$5,289.87	$3,974.25
Deductions from Sales:		
Sales Allowances	$17.25	$7.82
Delivery Expense	17.72	69.63
Total Deductions from Sales	$34.97	$77.45
Income from Sales	$5,254.90	$3,896.80
Cost of Sales:		
Gross Purchases	$3,758.92	$2,559.05
Less—Purchase Returns	12.72	
Net Purchases	$3,746.20	$2,559.05
Deduction from Purchases:		
Purchase Allowances	$26.50	$137.49
Trade Discount on Purchases	187.94	88.15
Total Deductions from Purchases	$214.44	$225.64
Cost of Purchases	$3,531.76	$2,333.41
Inward Freight	71.29	45.77
Inward Cartage	53.17	30.21
Packing Supplies	73.75	65.00
Total	$3,729.97	$2,474.39
Deduct—Increase in Inventory	609.26	108.38
Total Cost of Sales	$3,120.71	$2,366.01
Gross Profit on Sales	$2,134.19	$1,530.79
Selling Expense:		
Wages of Saleswomen	$220.00	$221.50
Commissions to Saleswomen	185.47	165.02
Advertising	200.00	150.25
Light	12.86	14.72
Total Selling Expense	$618.33	$551.49
Selling Profit	$1,515.86	$979.30

STATEMENT—*Continued.*

Administrative Expense:		
Salary of Bookkeeper	$60.00	$60.00
Office Expense	21.25	18.50
Stationery and Printing	25.00	12.50
Wages of Janitor	40.00	40.00
Total Administrative Expense	$146.25	$131.00
Net Profit on Sales—Income from Operation	$1,369.61	$848.30
Income from Sources other than Operation:		
Interest on Bank Balance	$18.75	$8.65
Interest on Notes Receivable	1.36	
Total Other Income	$20.11	$8.65
Total Income	$1,389.72	$856.95
Deductions from Income:		
Rent	$75.00	$75.00
Insurance	5.00	5.00
Interest on Notes Payable	49.30	44.37
Total Deductions from Income	$129.30	$124.37
Net Income—Profit and Loss	$1,260.42	$732.58
Profit and Loss Charges:		
Provision for Reserves for Depreciation—Furniture and Fixtures	$10.00	$10.00
Automobile	20.00	20.00
Total Profit and Loss Charges	$30.00	$30.00
Profit and Loss for the period	$1,230.42	$702.58
Deduct—Drawings	100.00	75.00
Profit and Loss added to Proprietorship	$1,130.42	$627.58
Proprietorship beginning of period	2,346.15	1,718.57
Proprietorship end of period	$3,476.57	$2,346.15

PROBLEM NO. 4A (PRACTICE)

From the following transcript of accounts taken from the books of John H. Elwell prepare a statement of income and profit and loss for the year ended December 31, 1911:

Rent-income, $2,000; interest on notes payable, $15; interest on bank balance, $20; taxes, $1,350; interest on notes receivable, $250; insurance, $144; salary, John H. Elwell, $2,500; office

expenses, $25; trade discount on purchases, $500; office salaried, $75; land and buildings, $80,000; capital, $106,329; furniture and fixtures, $1,500; accounts payable, $7,500; cash, $2,456; notes payable, $3,000; accounts receivable, $12,000; reserve for depreciation of buildings, $2,000; notes receivable, $5,000; merchandise-inventory, January 1, 1911, $18,000; purchases, $20,000; sales returns, $100; reserve for depreciation of furniture and fixtures, $75; salesmen's commissions, $2,500; advertising, $1,000; drawing account, J. H. Elwell, $50 (credit); heat and light, $50; sales, $25,000.

Inventory, December 31, 1911, $22,475; unexpired insurance, $44; purchases not included above, $350; light omitted above, $12; interest on accounts receivable, $10.

Announcement

Marwick, Mitchell, Peat & Company, announce that they have opened offices in San Francisco, Cal., at 310 California street; in Portland, Ore., at 302 Spalding Building, and in Vancouver, B. C., at 739 Hastings street, West, under the management of Messrs. H. J. Watt, C.A., J. P. Cash, C.A., and A. Stewart, C.A., respectively.

Book Department

TWELVE PRINCIPLES OF EFFICIENCY. By HARRINGTON EMERSON. Published by *The Engineering Magazine,* New York, 1912. Price, $2.00.

EFFICIENCY AS A BASIS FOR OPERATION AND WAGES. By HARRINGTON EMERSON. Third edition; revised and enlarged. Published by *The Engineering Magazine,* New York City, 1912. Price, $2.00.

The appearance of books on efficiency has a deep significance. The philosophy preached is as old as the human race, but the application is new. The term "efficiency" has lagged along in our daily speech like the word "righteousness." It has served its purpose in commonplace expression. The present association of efficiency with business organization has given the word the force of a new discovery. Somehow or other it has been taken for granted that under a system of competition efficiency in business would take care of itself. As a spur to human action and mental alertness competition accomplished wonders in the last century. The result is seen in the aids which production has received in the form of mammoth industries and wonderful mechanical inventions. Urged on by expanding markets at home and abroad our manufacturers of products and of transportation naturally looked upon a big output as the criterion of success. "Mass production" and "transportation in bulk" are still the principal words in the realm of manufacturing. The business world has glorified the tonnage principle and has made a fetish of the equipment—i. e., the machines, accounting systems, and office appliances by means of which a great output is accomplished.

Efficiency dependency upon equipment has reached its limit. The Standard Oil Company, the United States Steel Corporation, and the great railway systems are examples of men's achievement in working out the tonnage principle in business. But these great industries cannot stand forever on this principle alone. Efficiency in the future must mean not only *more* product but *less* waste in production. Some of the high organizing ability which has been devoted chiefly to market exploitation must now be turned to the conservation of the materials, forces, and men that make the goods.

The first step in the direction of the new methods of gaining efficiency is the comprehension of the principles underlying production management. The second step is the development of a type of organization through which efficiency is attained according to the principles.

Mr. Emerson has given us a clear statement of the principles running through twelve chapters of his book. These principles, though interrelated, stand in a logical sequence and are treated in the following order:

clearly defined ideals; common sense; competent counsel; discipline; the fair deal; reliable, immediate and adequate records; dispatching; standards and schedules; standardized conditions; standardized operations; written standard-practice instructions; efficiency reward.

The other four chapters are given over to a discussion of the best type of organization by which these principles may be worked out in practice. Among the essential elements of such an organization Mr. Emerson places an up-to-date accounting system. Such a system, however, is not one consisting primarily of devices but a system based on standards, efficiencies, and equipment. A modern accounting system based on standards will drive out "graft" sooner than all the "reform movements" of the country put together.

With the appearance of the twelve principles also comes the announcement of a new edition of Mr. Emerson's first book, "Efficiency as a Basis for Operation and Wages." These two books supplement each other to a remarkable degree. In the first book the author lays down the philosophical considerations for the doctrine of industrial efficiency. In the second book he expounds the principles of a new science. We hope that the author will complete the cycle by giving us a concrete example of the application of his principles, as they are worked out in some one plant. The average business man will appreciate the force of the doctrine of efficiency when he is presented with an illustration of procedure involved in making the tests for obtaining standards and the methods of reorganizing to meet the new conditions. A single plant described in detail and bringing out the principles of efficiency would go far toward clearing up the haziness clouding the average man's thought regarding "efficiency," "systematizing," and "speeding up."

The purpose of the two books now before the public as well as that of the many other works dealing with scientific organization and management is being rapidly attained. Business men are gradually beginning to doubt the efficacy of their present system of organization. The next step is to make them see their way to the obtaining of better methods. This can be done best by marking out clearly the organization of some particular plant which has applied the principles and found them effective. An ounce of staff management may go farther than a pound of powder in a military organization, but the example of successful staff organization as its effectiveness was brought out in a single Franco-Prussian campaign did more toward the remodeling of the military systems of the world than all the books ever written on the inefficiency displayed in the American Civil War.

Mr. Emerson has defined efficiency as applied to modern industry more clearly than any other writer. He has marked out definitely the close relationship between the wasteful methods of private enterprise and the weakness in our nation as a business unit in competition for the world's markets. A cost system of accounting when brought within the

scope of Mr. Emerson's system, ceases to be a mere compilation of prehistoric data. It becomes a live wire of communication when running parallel to the constructive line work of the industrial engineer. No business man nor accountant should fail to read these two books of Mr. Emerson's. He has given his message to the world in a form that must appeal to every thinking man. Somewhere between the covers the reader will find an illustration of the great principles of industrial efficiency which will appeal to his comprehension, for the author has drawn his illustrative material from the whole field of human endeavor. Dry rot has not touched Mr. Emerson's philosophy nor has he permitted himself to be drawn into wearisome preachings—a danger which most business men fall into when they leave the market place and adopt the rôle of social philosophers. When Mr. Emerson speaks of "The Realization of Standards in Practice" the reader is impressed with the broad grasp which the author has of the significance of standardization, and yet the reader is not raised to the regions of rare speculative thought and then left to climb down as best he can by means of his own meager experience. For example, the author begins the chapter by stating "Preservation and perpetuation are two of Nature's most important laws"; but in developing this thought and adapting it to business methods he makes over thirty allusions to various ways in which men have tried to conform to these laws by adopting some form of standardization. Finally a concrete example is given of a successful attempt to apply standards to a particular shop.

There are many changes in the new edition of "Efficiency as a Basis for Operation and Wages." Evidently the old plates were abandoned and the whole book reset. The principal changes, however, will be found in Chapters IV, V, VI, and VII. These are chapters which will appeal especially to the practical man and the material has been brought down to date covering the development of thought and practice since the first draft was given to the public.

A GUIDE TO READING IN SOCIAL ETHICS AND ALLIED SUBJECTS. By Teachers in Harvard University. Published by Harvard University, Cambridge, Mass., 1910. Price, $1.25.

There is no class of men to whom such a volume should appeal more than to business men. Many publishing companies interested more in the sale of books than in the material which the books contain get out attractive bibliographies. As a rule, however, these "book pamphlets" are simply advertising dodges and not much above the rank of patent medicine methods.

The origin of the Harvard publication is a guarantee that the readings have been carefully selected and men of affairs who are interested in the best contemporary studies of social conditions and problems will find a valuable guide in this volume.

The selections are put under six general classifications as follows: Social philosophy, social institutions, social service, the ethics of modern industry, social aspects of religion, bibliographical references in social ethics.

Although the subjects listed are all of a general nature treating of broad economic and social questions, nevertheless the references thus supplied are very valuable to the business man who would relate his own activities to the great movements in society of which his own are only a part.

Legal Department

EDITED BY CHARLES W. GERSTENBERG, PH.B., LL.B.

The Legal Department of THE JOURNAL OF ACCOUNTANCY is prepared to render a genuine service to its subscribers and readers, by undertaking to answer legal questions submitted to it. These questions, while they may be suggested by the problems that arise in the practice of our correspondents or by the more theoretical requirements of examination boards, should always be so stated as to call for single propositions of law. Whenever the Department receives a query the correct answer to which may vary with many possible but unstated circumstances the correspondents will be asked to give the details or advised to consult local counsel. Reasonably prompt replies by the Department will be made by personal communication or through the columns of THE JOURNAL. Address all communications to THE JOURNAL OF ACCOUNTANCY Legal Department, 198 Broadway, New York City.

HOLDING OF CORPORATION BOOKS AND PAPERS

In the matter of the United States of America vs. George Graham Rice, B. H. Sheftels & Company (a corporation) et al., before the United States Circuit Court, Southern District of New York, a motion was made by the corporation for an order compelling the United States Attorney for the district to return to it books and papers (alleged to be all the books and papers of its business) which had been seized without any search warrant at the time of the arrest of the individual defendants for an alleged scheme or artifice to defraud in violation of section 215, U. S. Criminal Code.

The individual defendants were at once indicted for said alleged offense; the corporate defendant was not.

In this condition of the record the corporation made a motion exactly similar to the present one, which motion was denied by Judge Lacombe on June 9, 1911. The only opinion filed was the following memorandum upon the moving papers: "This case may be differentiated from United States vs. Mills et al. by reason of the circumstance that the owner of these books is a corporation. Motion denied."

Subsequently a superseding indictment was found (on August 31, 1911) wherein the corporation was also made defendant, and as such defendant the corporation renewed its motion.

The following opinion is by Mr. Justice Hough:

"The following matters must be assumed as settled by the highest authority: 'Compulsory production of a man's private papers to establish a criminal charge against him, . . . is within the scope of the Fourth Amendment to the Constitution in all cases in which a search and seizure would be, because it is the material ingredient and affects the sole object and purpose of search and seizure.' (Boyd vs. United States, 116 U. S., at 622.)

"The Fifth Amendment does not apply to a corporation, and in a criminal proceeding against a corporation and its officers the books and papers of the company incriminating both the corporation itself and its officers may be introduced in evidence after production under subpœna

duces tecum, provided, of course, that they are the books and papers of the corporation (Hale vs. Henkel, 201 U. S., pp. 70 and 74).

"Yet it is admitted or asserted in the case cited that even a corporation is entitled to protection from unreasonable searches and seizures, and therefore it must follow also from an unreasonable impounding of its books and papers for purposes of evidence in a criminal cause.

"These restrictions are certainly applicable to the courts of the United States, it being as yet undecided whether the Fourteenth Amendment implies a prohibition upon the States against unreasonable searches and seizures (Hammond Packing Co. vs. Arkansas, 212 U. S., at 348).

"That a natural person having the custody of the books of a corporation may be compelled to produce such books, even though they incriminate him as well as the corporation, was fully held in Wilson vs. United States (U. S. S. C., April 15, 1911). This must follow from the previously decided or admitted truths: 1. That a corporation is not protected from furnishing evidence against itself, and 2, that a corporation is a different entity from any individual; wherefore the natural person cannot object to any effect that the corporation books may have upon his fate.

"The most recent decision on this subject (United States vs. Mills et al., 185 Fed. Rep., 318) does not in my opinion hold that without due search warrant the marshal may not seize documents 'concerning' the particular offense charged in the indictment, but only that he may not seize 'all the books and papers' of defendants 'covering their business' and of a kind that may show violations of law other than that for which indictment is found or arrest ordered.

"The only holding of the case last cited is that it is unreasonable and therefore unlawful to seize and hold what is not cognate nor related to the special crime in the indictment set forth.

"But where the crime alleged is a scheme to defraud as complicated and extensive as that charged here, the entire business of the defendant corporation and of the individual defendants, so far as they are connected, with the corporation or the indictment, is the scheme itself, and the books and papers are evidential, if not the best evidence, of the very scheme set forth. Therefore, in my judgment, seizure was not unreasonable and the holding is not unreasonable.

"The same books and papers could theoretically be compulsorily brought in at the trial under subpœna duces tecum and introduced in evidence against both the corporate and individual defendants. Motion denied."

Transfer of Stock

In an opinion recently handed down by Justice Laughlin in the First Department of the Appellate Division, Supreme Court, in the matter of Henry C. Strachan vs. Yorkville Bank, it was decided that Section 51

of the Stock Corporation Law (Consolidated Laws) which authorizes directors to refuse to consent to a transfer of stock until the stockholders' indebtedness to the corporation shall be paid, is applicable to banking corporations, and is not in conflict with section 27, subdivision 8, of the Banking Law (Consolidated Laws) prohibiting a loan or discount of any banking corporation upon the security of its own shares and forbidding the purchase of any such shares, unless necessary to prevent loss upon a debt previously contracted in good faith, and this notwithstanding Section 321 of the General Corporation Law to the effect that if in any corporate law there is any provision in conflict with any provision of the Stock Corporation Law, the provision so conflicting shall prevail, and that if the Stock Corporation Law with which it conflicts shall not apply, while if in any such corporate law there is a provision relating to a matter embodied in the Stock Corporation Law, but not conflicting with it, such provision shall be deemed to be an addition to the provision in the Stock Corporation Law, and both provisions shall be applicable.

Section 51 of the Stock Corporation Law which authorizes directors to refuse to consent to a transfer of stock until the indebtedness of a stockholder is paid, provided a copy of said section is written or printed upon a certificate of stock is substantially complied with by the printing of the substance of said section on the face of the certificate, the object of the section being to give notice to the purchaser of the stock of the rights of the corporation.

Where a domestic banking corporation made a loan in good faith to a stockholder, and there was no pledge of the borrower's stock as security for the loan, and no evidence that the transaction was made with reference to the stock, it was held that the transaction was not in violation of section 27, subdivision 8, of the Banking Law, and that until payment of the loan the corporation was entitled to refuse to consent to a transfer of the stock to a subsequent purchaser, the certificate containing on its face the substance of section 51 of the Stock Corporation Law. (*New York Law Journal*, December 21, 1911.)

Directors Not Liable for Honest Mistake of Law

In the matter of Charles W. Cass et al., vs. Realty Securities Company et al., which was recently carried up to the First Department of the Appellate Division of the Supreme Court, it was held that the directors were not liable for an honest mistake of law.

The plaintiffs in the action were holders of bonds issued by the defendant, which bonds were secured by a junior lien on certain parcels of real estate. The mortgaged property having been sold, there remained about $33,000 after satisfying all prior mortgages, of which $20,000 was applied by the directors, who are the individual defendants, to pay off the general creditors and leaving $13,000 in the treasury of the company.

The company was insolvent, and arrears of interest on the bonds amounted to more than $33,000.

The plaintiffs claimed that their lien attached to the $33,000 representing the net proceeds of the sold real estate, and that their rights in the fund were superior to those of the general creditors. They sued to recover the $13,000 held by the company, and in the same action sought to charge the directors individually for the $20,000 paid out to the general creditors. The defendants put in separate demurrers to the complaint for general insufficiency and misjoinder of causes of action.

In an opinion by Justice Scott, which was concurred to by all but Justice Laughlin, it was held (1) that there is a misjoinder involved in the attempt to combine a cause of action against the Securities Company (to recover the $13,000) and the action against the directors (to recover the $20,000) since the causes of action rest on different principles, and the directors are not proper parties to the action against the company. (2) No cause of action is stated against the directors. It seems that the plaintiffs have not qualified to sue them, not having exhausted the remedies against the company. In any case, however, since the action against directors is of a derivative nature, loss to the company must be shown, and the directors did not harm the company by paying the $20,000 to general creditors; they simply paid one class of creditors instead of another. Furthermore it was not shown that the payment was due to anything but an honest mistake of law, for which directors are not liable. (3) The securities held by plaintiffs, although denominated bonds, were in effect only a species of preferred stock. Although containing a promise to pay a fixed sum, the bond and trust deed contained provisions allowing the bondholders to share in profits and providing for satisfaction of the bonds on payment of a "ratable proportion" of the assets, whether more or less than the face value of the bond. These are distinguishing characteristics of stock, and it is unlawful to give to securities having such attributes a lien superior to rights of general creditors, the two things being inherently inconsistent. (*New York Law Journal*, January 12, 1912.)

Correspondence

Steamship Accounting

EDITOR, JOURNAL OF ACCOUNTANCY:

As a regular reader of your magazine, I shall esteem it a favor if you will give publicity to the following question, with a view of securing as wide a range of answers as possible:

> What books should be kept and what would the best classification of accounts be for the agency of a steamship line, operating, say, three or four steamers per month out of New York Harbor?

The principal duties of the agency would appear to be the following:

Collection of prepaid outward freight;
Collection of inward freight;
Collection of passage money;
Collection of freight and passage money from sub-agent, who makes advances of money to steamers en route, and draws on New York agency;
Payment of dock and agency expenses;
Advances to captains for wages of steamers' crews;
Payments to local firms for account of head office abroad;
A small stock of supplies is also carried at dock for convenience of steamers when calling at this port;
Practically all repairs, as well as purchases of provisions, coal, etc., are made at this end.

The classification of accounts to contain the elements entering into both the credit and debit sides, for example, head office, voyage, etc., accounts, after the manner of a new work on the "Science of Accounts" published in the fall of last year.

Thanking you kindly for any courtesy which this inquiry may receive at your hands, I remain,

Yours very truly,

BONA FIDE.

[This letter would seem to suggest the desirability of employing a competent firm of accountants to devise and install a suitable system. We shall be glad to hear from our readers but probably few of them have any cut-and-dried systems applicable to such a business.—EDITOR, JOURNAL OF ACCOUNTANCY.]

Interest on Timber Company Investments

EDITOR, JOURNAL OF ACCOUNTANCY:

Please advise me fully your views as to how the accounts should be kept, in order to show the true profit and loss on the legitimate business of the following imaginary corporation, conducting a business of exporting lumber and timber in the following way:

A capital of $100,000 is invested in the business and in order to purchase lumber and timber, it is necessary to borrow an additional $500,000, which is invested in timber and lumber, represented on the books of the corporation by the amount of stock of timber on hand and advances to mills on account of lumber to be manufactured by them and shipped by the corporation. Interest is of course paid on $500,000 so invested at six per cent. It is thought advantageous by the corporation to invest, say, $500,000 more in mills, transportation companies, and other businesses that would increase the volume of business done by the corporation. Such additional capital will be represented by the stock in the various other companies. Interest is of course paid on the additional $500,000 borrowed for the purpose of making the outside investments.

Now, the question that arises is, shall the interest account of the corporation bear the interest charge on the additional $500,000 so invested, which, while it would probably give the corporation in the course of time a profitable return in dividend, is, for the first two years at least unable to make any returns in dividends, except in the advantage to corporation in the increased volume of business produced?

Would it be correct to assume a profit on the outside investments carried on the books of the corporation equal to at least the amount of interest paid? In other words, would it be correct to open a "Sundry Investment Interest Account" to be carried as an asset by the corporation until a dividend or profit is realized?

Very truly yours,

T. W. S.

[Our correspondent raises an interesting and important question upon which there is a wide difference of opinion among accountants and we hope there may be a general expression of opinion relative to the treatment of interest on timber-land investments. Incidentally, we would point out that such a company, capitalized at $100,000 and bonded for $1,000,000, would preferably be left in the imaginary stage.—EDITOR, JOURNAL OF ACCOUNTANCY.]